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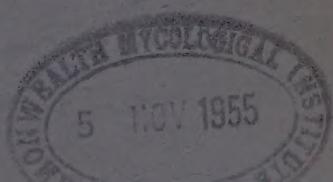
THE VETERINARY BULLETIN

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[No. 10]

DISEASES CAUSED BY BACTERIA AND FUNGI

STEEDE, F. D. F. & SMITH, H. W. (1954). **Staphylococcal food-poisoning due to infected cow's milk.**—*Brit. med. J.* Sept. 4th, 576-577. Addendum pp. 577-578. [Authors' summary slightly modified.] **3095**

An account of two small outbreaks of staphylococcal food-poisoning caused by clotted cream prepared on two different occasions from the milk of the same cow. *Staph. pyogenes* was found to be present in the milk from one of the quarters of the cow's udder on several occasions. The same type of staphylococcus was also isolated from the nose of the milker. The characters of these strains of staphylococci more closely resembled strains of human than bovine origin.

BLANCO LOIZELIER, A. & VINDELL CAURIN, J. A. (1955). Estudio sobre la estafilococia aviar. [Staphylococcal infection in fowls.]—*Rev. Patron. Biol. anim.* 1, 157-164. **3096**

The authors investigated staphylococcal infection in fowls. They isolated several strains of staphylococci and studied their sugar reactions and haemolytic properties and concluded that there were two types of infection. The acute form (vesicular dermatitis) was characterized by fever (44° C.), inappetence, pallor of the mucosae, diarrhoea, ruffling of feathers, and death in 12-48 hours. Haemorrhagic oedema, loss of feathers and, in some cases, omphalitis were noticed. The subacute type was characterized by lameness due to inflammation of the tibio-metatarsal and plantar joints. Ankylosis followed and death, due to cachexia, eventually supervened. P.M. findings in the acute form were those of septicaemia. In the subacute form there was marked loss of condition, with muscular atrophy and arthritis—serofibrinous, purulent or caseous. The skin covering the lesions was parchment-like.

—T. E. GATT RUTTER.

FARMER, E. D. (1954). **Serological subdivisions among the Lancefield group H streptococci.**—*J. gen. Microbiol.* 11, 131-138. **3097**

Using the absorption precipitation test, 17 Group H streptococci were subdivided into two types. *Str. sanguis* I and I/II corresponded serologically with these sub-groups.

—A. SEAMAN.

SCHIPPER, I. A. (1955). **Comparison of vehicles in intramammary therapy of bovine mastitis.**—*Vet. Med.* 50, 111-113. [Author's summary modified.] **3098**

The intramammary administration of chemotherapeutic agents in aqueous vehicles provides a more uniform diffusion throughout the entire quarter of the mammary gland than is obtained when oily vehicles are used.

SCHIPPER, I. A., KOSHI, J. H., PALLESON, D. W. & PETERSON, W. E. (1954). **The effects of intravenous administration of oxytocin upon pregnant cows.**—*Vet. Med.* 49, 356-357. **3099**

Oxytocin, an aqueous solution containing the oxytocic principle of the posterior lobe of the pituitary gland, was given i/v in a dosage up to 20 U.S.P. units weekly for 49 weeks to cows in various stages of lactation and gestation for the treatment of mastitis. None of the treated cows aborted.—W. R. BETT.

FIEVEZ, L. (1954). Nouvelles expériences concernant l'utilisation de la lumière ultraviolette pour la destruction des spores des bactéries aérobies. [Destruction of bacterial spores by ultra-violet light.]—*Ann. Med. vet.* 98, 65-81. **3100**

Irradiation with ultra-violet light was found to inhibit the growth of 99% of the spores of *Bacillus subtilis*. Even better results were obtained when the spores were treated in addition with acetic acid. Of the spores which survived irradiation, there was retardation of

growth in 58% of those treated with acetic acid, in 28% of those treated with water, and in 9% of those irradiated in the dry state.—W. R. BETT.

THOMSON, P. D. (1955). The use of blood culture in the routine diagnosis of anthrax.—*J. comp. Path.* **65**, 1-7. [Author's summary modified.] **3101**

T. described a blood culture technique as an aid to diagnosis of anthrax in microscopically negative material requiring further investigation. A test with defibrinated blood or serum as the culture medium is more sensitive than g. pig inoculation.

In the examination of feeding stuffs and other materials, however, it would appear that the inoculation of six mice is superior to either the inoculation of two g. pigs or to the use of one blood culture, but quite clearly, more positive results are obtained by the concurrent use of all three methods.

WEIDENMÜLLER, H. (1954). Fortschritte in der Milzbranddiagnostik. [Progress in the diagnosis of anthrax.]—*Mh. Tierheilk.* **6**, 186-192. **3102**

Twelve strains of *Bacillus anthracis* and 28 strains of aerobic anthracoid organisms were examined by methods employed for the bacteriological diagnosis of anthrax. W. concluded that the "pearl necklace" test described by Jensen & Kleemeyer [V.B. **24**, 1360], which is based on the formation of characteristic colonies by *B. anthracis* in the presence of penicillin, was the only procedure which gave specific and readily visible results. He was unable to confirm the observations of Nordberg [V.B. **24**, 1362] on capsule formation by *B. anthracis* in horse serum.—W. G. SILLER. **3107**

RICHOU, R. & RICHOU, H. (1955). Action bactéricide du rose Bengale à l'égard de *Bacillus anthracis*. [Bactericidal action of rose bengal stain on *B. anthracis*.]—*C. R. Soc. Biol., Paris.* **149**, 45-46. **3103**

In vitro tests showed that rose bengal stain [tetraiodo-tetrabromfluorescene] had a bactericidal effect on *B. anthracis*.—T. E. GATT RUTTER.

KULKARNI, H. V. (1953-1954). Bovine tuberculosis. Its incidence in the Bombay State.—*Bombay Vet. Coll. Mag.* **4**, 36-38. **3104**

Of 3,000 cattle and buffaloes tuberculin-tested in the State of Bombay, 6% cattle and 11% buffaloes were found to be infected. P.M. examination revealed advanced pulmonary lesions. Disposal by slaughter of open cases

and of reactors is objected to on religious grounds.—W. R. BETT.

MEYN, A. & SCHLIESSEN, T. (1954). Weitere Untersuchungen über das Vorkommen von Tuberkelbakterien im Fleisch tuberkulöser Rinder. [Further investigations into the incidence of tubercle bacilli in the meat of tuberculous cattle.]—*Rindertuberkulose* **3**, 105-124. **3105**

The meat of tuberculous cattle was examined for the presence of tubercle bacilli. Results were negative in 15 cases with primary complexes. The organism was demonstrable in 15 out of 137 cattle with isolated chronic organ TB., in 20 of 113 cases with chronic TB. of more than one organ and in 22 out of 35 cases with acute generalized TB.

—W. G. SILLER.

VIALLIER, J. & LAGER, S. (1955). Sur les caractères distinctifs de *Mycobacterium tuberculosis* var. *bovis*. [Identifying characteristics of bovine type tubercle bacilli.]—*C. R. Soc. Biol., Paris.* **149**, 118-119. **3106**

Of 183 strains of *Mycobact. tuberculosis* isolated mainly from children, 4 were of the bovine type. Cultural characteristics, urease activity and sensitivity to isoniazid (iso-nicotinic acid hydrazide), *p*-aminosalicylic acid and streptomycin were studied as likely methods of identification and differentiation from the human type. The authors concluded that none of these was as satisfactory as rabbit inoculation.

—ANNIE LITTLEJOHN.

SEYERL, F. (1954). Zur Tuberkulose des Schweines. [TB. in pigs.]—*Die Rindertuberkulose* **3**, 85-90. **3107**

A general account of TB. in pigs, with emphasis on the need for better methods of eradication.—W. G. SILLER.

DUBOS, R. J. (1955). Effect of metabolic factors on the susceptibility of albino mice to experimental tuberculosis.—*J. exp. Med.* **101**, 59-84. [Author's summary modified.] **3108**

Mice maintained on various types of diet were found to become more susceptible to TB. when deprived of food for periods of 30 hours shortly after infection. In contrast, the susceptibility of the animals to the disease was unaffected by undernutrition resulting from limitation of food intake to a low but constant daily level. Resistance appeared to be independent—within wide limits—of the protein content of the diet. It could be consistently and

markedly decreased by adding sodium citrate (or glutarate) to the diet.

The survival time following infection was greatly shortened if dinitrophenol or thyroxine were administered *per os* in amounts sufficient to limit the weight gains of non-infected controls. There was usually a lag period of several days before the infection-enhancing effect of these metabolic stimulants became manifest. The procedures which increased the susceptibility of mice to infection with virulent tubercle bacilli also made it possible to establish in these animals a fatal infection with B.C.G. There was no constant relation between weight gains of uninfected mice on the various regimens, and the effect of the latter on susceptibility to TB.

These findings appear compatible with, but do not prove, the hypothesis that a decrease in resistance to infection can be brought about by metabolic disturbances which cause either a depletion of the glycogen reserves of the body, or a reduction in the glycolytic activity of inflammatory cells, or an increase in the concentration of certain polycarboxylic acids and ketones in the tissues.

PRÖKEL, W. (1953). Versuche über Fütterungstuberkulose bei Hühnern unter Berücksichtigung der Verteilung der Kolibakterien im Darmkanal. [Fate of ingested tubercle bacilli in the digestive system of fowls and distribution of *Bact. coli* in the intestine.]—*Inaug. Diss., Munich*. pp. 34. **3109**

The resistance of healthy fowls to infection with tubercle bacilli by the oral route could be overcome by pretreatment *per os* or intramuscularly with the toxin of *Bact. coli*, the latter route being the more effective. In healthy fowls *Bact. coli* occurs only in the large intestine and caeca.—W. G. SILLER.

SPITZNAGEL, J. K. & DUBOS, R. J. (1955). A fraction of tubercle bacilli possessing primary toxicity.—*J. exp. Med.* **101**, 291-311. [Authors' summary modified.] **3110**

Tubercle bacilli separated from young cultures were extracted with monochlorobenzene at temperatures up to 50° C. From the soluble material, a fraction corresponding to approx. 1% of the total bacillary wt. was separated by fractional precipitation with petrolic ether at temperatures of 0° or 4° C.

The authors described the characteristics of the fraction. It did not elicit tuberculin allergy in g. pigs, but produced severe local reactions when 5 µg. were injected into the skin. Reactions in mice were also described.

Fractions were obtained from one virulent,

two attenuated, and one avirulent strain of mammalian type tubercle bacilli (bovine and human). They differed somewhat in solubility and toxicity. The more virulent the culture, the more toxic was the fraction obtained from it; but this correlation may have been the result of differences in the effectiveness of the extraction procedures, rather than of characteristics inherent in the cultures.

Evidence was presented that the toxicity of the fraction prepared as described accounts for much of the primary toxicity of tubercle bacilli.

BRIEGER, E. M., COSSLETT, V. E. & GLAUERT, A. M. (1954). Reproductive changes in avian tubercle bacilli studied with the electron microscope.—*J. gen. Microbiol.* **10**, 294-303. [Authors' summary modified.] **3111**

The authors recorded the various stages of the reproductive cycle in freshly transplanted cultures of avian type tubercle bacilli by a series of successive electron micrographs. They described an early stage of cytoplasmic differentiation in which discrete cellular units form inside the elongating filaments. They discussed their significance and relation to the vacuolization seen at later stages. They produced evidence to show that the dense bodies of mycobacteria are not nuclei. Free granules do not appear to play any part in the reproductive cycle in the normal type of development. In mycelial variants lysis is often seen to initiate new growth which starts from submicroscopic elements and micro-rods.

PATERSON, A. B. (1954). La préparation de la tuberculine à utiliser dans l'épreuve intradermique chez les bovidés. [Methods of preparation of tuberculin for use in the intradermal test in cattle.]—*Bull. Off. int. Epiz.* **42**, May, pp. 339-346. [English summary.] **3112**

A brief account of methods of preparation of Old Tuberculin, tuberculin on a synthetic medium concentrated by heat, and of P.P.D. tuberculins, and of their biological control, with a discussion of the advantages of each type.—W. R. BETT.

ANON. (1955). Effect of exposure of tuberculin to light.—*Bull. World Hlth Org.* **12**, 179-188. [In English. French summary. Abstract from English summary.] **3113**

In each of two studies light-exposed and unexposed (control) samples from the same tuberculin dilution were compared by duplicate i/d Mantoux testing in groups of B.C.G.-vaccinated schoolchildren. The difference in

mean size between the children's reactions to the two samples was used as a measure of the effect of exposure to sunlight. (1) A 5 TU dilution was exposed in ordinary clear glass bottles to sunlight in Egypt for a total of 12 hours. The tests in 154 children revealed that the exposed dilution had lost all except a fraction of its original potency. (2) To obtain information on the relative effect of different parts of the solar spectrum 10 TU dilutions were irradiated with artificial light of different wave-lengths and tested on 727 children. It was found that ultra-violet radiation considerably reduced the potency of tuberculin, whereas medium- and long-wave radiation of the same intensity had little or no effect. It is of practical importance that ultra-violet rays of the wave-lengths used in this study are transmitted by ordinary clear glass. It would therefore appear that prolonged exposure of tuberculin to strong sunlight and daylight should be avoided.

HOLDEN, M., SEEGAL, B. C. & ADAMS, L. B. (1953). The effect of tuberculin and cortisone singly and in combination on explanted tissues of guinea pigs, mice, and rabbits.—*J. exp. Med.* **98**, 551-563. 3114

Observations on the effect of cortisone on the reaction produced by tuberculin in cultured cells from tuberculous g. pigs, mice and rabbits revealed that the specific effect of P.P.D. tuberculin on tissues from tuberculin-sensitive animals was not modified by cortisone.

—J. A. NICHOLSON.

BOYDEN, S. V. & SORKIN, E. (1955). Serological activity of various fractions of culture filtrates of the tubercle bacillus.—*Bull. World Hlth. Org.* **12**, 285-299. [In English. French summary. Abst. from English summary.] 3115

An account of the first of a projected series of experiments to identify some of the different antigens likely to be of value in laboratory tests for measuring the antibodies in human blood. The work involves the fractionation of concentrated culture filtrates by various chemical procedures, the chemical analysis of the fractions, and their subsequent testing and cross-testing by various serological procedures.

A number of fractions made from filtrates of heated and unheated cultures were tested for activity in the Middlebrook-Dubos haemagglutination test. As might be expected, the fractions were found to vary in potency, some having at least a thousand times more erythrocyte-sensitizing activity than others.

Cross-inhibition tests using the most active preparations indicated the existence of at least two different substances responsible for sensitizing erythrocytes to agglutination, one being demonstrable only in certain unheated fractions.

Antibodies detected with the tannic acid haemagglutination test have a different serological specificity from those detected by the Middlebrook-Dubos test. Different heated fractions yielded strong reciprocal cross-reactions in the tannic acid haemagglutination procedure, and little difference could be seen between them ; in contrast, four active fractions from unheated filtrates were distinct from each other, yielding very little cross-reaction.

The use of agglutination of normal erythrocytes by antiserum-antigen mixtures revealed another antigen, not measured in the tannic acid or Middlebrook-Dubos techniques. Further work is necessary to determine whether the serological differences are of any special significance in relation to TB. or bacterial type specificity.

ANON. (1955). Tuberculin reaction size in human populations as a possible index of the prevalence of bovine infection. A preliminary report.—*Bull. World Hlth. Org.* **12**, 277-283. [In English. French summary. English summary modified.] 3116

In order to check a possible explanation of variations found in Denmark in the average size of positive tuberculin reactions in different parts of the country, a small-scale special study was made in connexion with the recent Danish mass anti-TB. campaign. It was carried out in two selected districts ; one where cattle TB. had been highly prevalent in the past and one where it had been rare.

The average size of the reaction was substantially larger in the former district, and this experience was useful in analysis of some of the routine mass campaign material. Quite large and consistent variations were found in the average size of the tuberculin reactions in different parts of the country. The variations could not be explained by such obvious factors as differences in the tuberculin used, in the testing technique, or between the observers reading the reactions ; nor could they be consistently related to differences in the proportions of positives. The results of the study suggested that the average size of the reactions is related to the prevalence in the past of TB. in cattle, and this was again the case in the analysis of the campaign material : smaller reactions were found in counties long free from cattle TB., larger reactions in counties where bovine

infection had only recently been eradicated.

The present report, while regarded as preliminary, has possible implications for TB. control studies in countries where very little is known about the incidence of TB. in cattle.

ANON. (1955). Repeated tuberculin tests in the same site.—*Bull. World Hlth. Org.* **12**, 197-209. [In English. French summary. English summary modified.]

3117

When the tuberculin-testing technique laid down by the Tuberculosis Research Office for field studies in human beings became so standardized that successive tests were being placed at about the same site on the forearm, there was a sudden and pronounced increase in the frequency of bullous reactions. Preliminary trials indicated that repeated testing in the same site was the most likely cause of this altered response to tuberculin. In a further study on 356 mental patients, each receiving an initial test with 5 TU in one forearm and 3 months later two follow-up tests with 5 TU—one in the same site as the initial test and one in the corresponding site on the other forearm, it was found that among tuberculin-sensitive persons the response to tuberculin injected into the site of a previous test differed both in size and in character from the response to tuberculin injected into an unused site. In the previously used sites the tuberculin reactions appeared sooner and faded sooner than reactions in new sites; they attained greater maximum size and there was a much higher incidence of bullae. The "used-site" phenomenon may therefore give rise to difficulty in the interpretation of reactions in programmes involving periodic tuberculin-testing.

ANON. (1955). Further studies of geographic variation in naturally acquired tuberculin sensitivity.—*Bull. World Hlth. Org.* **12**, 63-83. [In English. French summary. English summary slightly modified.]

3118

This paper presents the results of the tuberculin-testing of over 3,600 patients in TB. hospitals and of nearly 34,000 schoolchildren in widely separated areas where arrangements had been made for specially trained personnel to work with uniform materials and techniques. Both patients and children were tested with an intradermal dose of 5 TU, and the children were re-tested with 100 TU if the reactions were less than 5 mm.

The results confirm those of earlier papers, that at least two different kinds of naturally acquired tuberculin sensitivity are found in many human populations; a high-grade sensitivity,

designated "specific" for virulent tuberculous infection, and a low-grade kind designated "non-specific," or not specific for tuberculous infection. Specific sensitivity is the kind found in tuberculous patients and in some schoolchildren everywhere. It follows a remarkably uniform pattern wherever it is found, apparently varying only in prevalence, not in degree, from place to place. In contrast, non-specific sensitivity varies both in prevalence and in degree. It ranges from nearly universal prevalence in some localities to almost complete absence in others, from a low degree to a relatively high degree approaching that of specific sensitivity. Non-specific sensitivity is not correlated with specific sensitivity and may have different causes in different places.

Serious practical problems arise as the prevalence and intensity of non-specific sensitivity increase, because with the tuberculin products in current use the larger non-specific reactions cannot be distinguished from the smaller specific reactions. A better, though not entirely satisfactory, separation of infected and uninfected persons might be obtained by using different criteria in different geographical areas for what is called a positive reaction to the 5 TU test. Changing the current criterion would probably provide a better estimate of the prevalence of infection in some communities; a lower proportion of the uninfected would be classed as positive at the expense of a few infected persons who would be classed as negative.

The analogous problem of separating specific from non-specific sensitivity in cattle has been provisionally solved by comparative testing with tuberculins made from different types of mycobacteria. Similar methods are now being investigated for possible application to TB. control work in human populations.

ANON. (1955). Sensitivity of human populations to human and avian tuberculins.—*Bull. World Hlth. Org.* **12**, 85-99. [In English. French summary. English summary modified.]

3119

A preliminary report on studies in human beings of the value of comparative tuberculin testing, using tuberculin prepared from different types of mycobacteria, on the basis of current veterinary methods.

Working in several parts of India, a research team tested more than 3,000 persons with serial doses of both a human and an avian type of P.P.D. tuberculin corresponding to 1, 10, and 100 tuberculin units (TU). An additional 6,000 were tested only with serial doses of human type tuberculin.

Presumptive evidence of non-specific sensitivity in some of the populations was found from the results of the tests with human type tuberculin. Discrepancies in the frequencies of weak-dose and strong-dose reactors in different geographical areas, together with evidence from previous studies, suggested that most of the persons with strong-dose reactions could be regarded as having non-specific tuberculin sensitivity.

Results of comparative tests with human and avian types of tuberculin further indicated that the tuberculin sensitivity in the populations studied must be caused by different sensitizing agents: one producing a high degree of sensitivity brought out more effectively by the human than by the avian type of tuberculin, the other producing a low degree of sensitivity brought out more effectively by the avian than by the human type tuberculin. The groups with high-grade sensitivity—those who react to the weak-dose test—can undoubtedly be regarded as having specific sensitivity of the kind caused by infection with virulent tubercle bacilli; the group who react only to the 100 TU test have apparently been sensitized by a different agent (or agents). Though the identity of the non-specific agent is still unknown, its antigenic properties would seem to be more closely related to avian than to human type tuberculin.

ANON. (1955). Experimental studies of vaccination, allergy, and immunity in tuberculosis. III. Effect of killed B.C.G. vaccine.—*Bull. World Hlth. Org.* **12**, 47-62. [In English. French summary. English summary slightly modified.] **3120**

The antigenic effects of living and killed B.C.G. vaccine were investigated by comparing the degree of tuberculin allergy, the size of vaccinal lesions, and the survival time after challenge infection in large numbers of g. pigs vaccinated with B.C.G. suspensions containing various concentrations of living and killed organisms. The allergizing as well as the immunizing potency of B.C.G. was markedly reduced—though not entirely abolished—when the bacilli were killed, yet the size of the vaccinal lesion was only slightly reduced. Results were about the same regardless of whether heat, light, or phenol had been used to kill the organisms. It would therefore appear that viability of the organisms in B.C.G. vaccine is important for immunity as well as for allergy, whereas the size of the vaccinal lesion is determined largely by the total mass of bacterial cells injected.

HAMILTON, G. M. & NASSAU, E. (1955). The immunizing properties of isoniazid-resistant tubercle bacilli in guinea-pigs.—*Tubercle, Lond.* **36**, 130-138. [Authors' summary modified.] **3121**

iso-Nicotinic acid hydrazide-resistant human type tubercle bacilli were found to possess immunizing properties against experimental TB. in g. pigs, the degree of protection afforded being comparable to that obtained with B.C.G.

DEGLI ESPOSTI, A. (1954). Sulle caratteristiche dell'immunità antitubercolare nel coniglio vaccinato con b.K. uccisi e con b.K. uccisi addizionati a fattore diffusore (V.D.). [Immunity against TB. in rabbits vaccinated with killed tubercle bacilli alone or with the addition of spreading factors.]—*Boll. Ist. sieroter., Milan.* **23**, 1-22. [English summary.] **3122**

In the presence of simultaneously inoculated hyaluronidase, killed tubercle bacilli regain the property of influencing the adjacent lymphatic regions. This might account for the more intense allergic and immune response which they elicit in rabbits, in comparison with killed tubercle bacilli injected alone.—I. MARTINI.

PEDINI, B. (1953). Ulteriori rilievi sul trattamento della TBC. bovina con idrazide dell'acido isonicotinico. [Treatment of TB. in cattle with *iso-nicotinic acid hydrazide*.]—*Clin. Vet., Milano.* **76**, 353-360. [English and French summaries.] **3123**

Five cattle with advanced TB. were given a daily dose of 4 mg. *iso-nicotinic acid hydrazide* per kg. body wt. They tolerated the drug well and improved remarkably in general condition. The animals manifested eosinophilia and increased sensitivity to tuberculin.

—I. W. JENNINGS.

PENSO, G. (1954). Un nuovo bacillo tubercolare: il *Mycobacterium minetti* ed una nuova malattia dei bovini. [M. *minetti* infection in cattle.]—*Zooprofilassi.* **9**, 487-497. (English and French summaries.) **3124**

This is a description of a disease of cattle, chronic in course, affecting mainly the lymph nodes, but also the liver and kidneys. Histologically it is characterized by the extreme rarity of giant cells, by the absence of true epithelioid cells, and by the particular type of caseous necrosis. The causal organism was originally isolated by Minett and believed to be the avian strain of the tubercle bacillus, but P. suggests that it be named *M. minetti*.

—I. W. JENNINGS.

TERNI, M. (1954). Virulenza di una variante de *Mycobacterium minetti* (Penso e coll., 1952) resistente al fago specifico. [Virulence of a variant of *M. minetti* resistant to a specific phage.]—*Boll. Ist. sieroter. Milano*, **33**, 344-351. [English summary.] **3125**

A comparison of a phage-susceptible strain and a phage-resistant strain of *Mycobacterium minetti* revealed no differences between the two in their virulence for young mice nor in their morphological, cultural and biochemical properties.—R.M.

SZYBALSKI, W. & BRYSON, W. (1954). Genetic studies on microbial cross-resistance to toxic agents. III. Cross-resistance of *Mycobacterium ranae* to twenty-eight antimycobacterial agents.—*Amer. Rev. Tuberc.* **69**, 267-279. [French and Spanish summaries.] **3126**

Cross-resistance tests on a large number of antibiotics and other toxic agents revealed that within one group of these agents, *M. ranae* was uniquely selective. The drugs fell into groups of high and low degrees of cross-resistance. Resistant strains showed very little collateral sensitivity.—F. R. PAULSEN.

DEOM, J. & MORTELMANS, J. (1954). Bovine paratuberculosis in the Belgian Congo.—*Bull. epiz. Dis. Afr.* **2**, No. 2. In English, pp. 11-13; in French, pp. 41-43. **3127**

The presence of Johne's disease in cattle in the Belgian Congo was confirmed in Oct. 1953. In the course of an epidemiological inquiry, *Mycobacterium johnei* was isolated from 6 out of 19 samples of material (faeces and intestinal scrapings) from suspected animals. All the infected animals came from the "calving kraal" part of the farm where calving cows are collected for parturition.—W. R. BETT.

WHITTY, B. T. (1955). Johne's disease in sheep.—*Irish vet. J.* **9**, 102-103. **3128**

An account of one case. Lesions were similar to one type recorded by Stamp & Watt in Scotland [V.B. **24**, 1774].

—C. C. BANNATYNE.

VARDAMAN, T. H. (1954). The effect of various chemical agents on the viability of *Mycobacterium paratuberculosis* in vitro.—*Amer. J. vet. Res.* **15**, 159-163. [Author's summary modified.] **3129**

The following chemical disinfectants prevented growth of *M. johnei* after 15 min. of exposure *in vitro* :—Cresylic disinfectants No. 1, 3 and 4 at 1 : 32 and 1 : 64 dilution; cresylic disinfectant

No. 1, phenol coefficient 5, at 1 : 64 diln.; coal-tar disinfectant No. 2, phenol coefficient 12, at 1 : 100 diln.; phenol U.S.P. at 1 : 40 diln.; sodium orthophenylphenate at 1 : 100 and 1 : 200 dilns.; alcohol, 95% and 70%; mercury bichloride at 1 : 1,000 diln.; calcium hypochlorite at 1 : 50 diln.; and methylene blue at 1 : 500.

The following chemicals did not prevent growth of *M. johnei* after 60 min. of exposure :—Sodium hydroxide at 1 : 16 diln.; quaternary ammonium compounds at 1 : 250 diln. of available quaternary; basic fuchsin at 1 : 25 diln.; crystal violet at 1 : 50 diln.; and brilliant green at 1 : 33 diln.

Organic matter reduced the germicidal efficiency of bichloride of mercury, but not that of the four cresylic acid disinfectants, coal-tar disinfectant No. 1 and 2, phenol, and sodium orthophenylphenate.

On the basis of the tests conducted, the disinfectants in the same diln. that are recommended for official use for premises infected with *M. tuberculosis* are satisfactory for use for premises infected with *M. johnei*. [Cresylic disinfectants Nos. 1, 3, 4 etc. are preparations listed by the U.S. Bureau of Animal Industry as approved disinfectants.]

WEIDLICH, N. (1954). Zur Kenntnis der embolisch-eitrigen Nierenentzündung des Schweines. [Corynebacterial pyelonephritis in pigs.]—*Zbl. Vet. Med.* **1**, 455-468. [English, French and Spanish summaries.] **3130**

Material from pyaemic nephritis in 87 slaughter pigs was examined bacteriologically. Corynebacteria were isolated in 51 cases, *Bact. coli* in 17, streptococci in 4 and staphylococci in 3. Whereas streptococci and staphylococci became established in the glomeruli and the latter tended to induce necrosis, corynebacteria and *Bact. coli* penetrated to the distal portions of the nephron and the kidney pelvis.

—W. G. SILLER.

DABROWSKI, T. & MERESTA, L. (1955). Listereloza owiec. [Listeria infection in sheep.]—*Méd. vét., Varsovie*, **10**, 135-136. **3131**

An account of an outbreak in which sheep manifested signs of respiratory and nervous disorders. P.M. examination revealed pneumonia and nasal discharge. *Erysipelothrix (Listeria) monocytogenes* was isolated from the lungs, nasal discharge, liver, spleen and blood. Following instillation of the organism into the conjunctiva of a rabbit no inflammatory reaction occurred, but an i/v inoculation produced monocytosis after 7 days. Further

inoculation into g. pigs and mice yielded characteristic lesions of multiple focal necrosis.

—M. GITTER.

HUDSON, J. R. (1954). Prophylaxie de la pasteurellose bovine. Note préliminaire sur la classification des souches de *Pasteurella septica* et sur un vaccin vivant atténué. [Typing of strains of *Past. septica* and a note on a living attenuated vaccine.]—*Bull. Off. int. Epiz.* **42**, May, pp. 267-277. [English summary.] **3132**

The only method of practical value for classifying strains of *Past. septica* is that based on immunological relationships. For the protection of buffaloes and cattle against true haemorrhagic septicaemia a monovalent vaccine should be sufficient. Lyophilized vaccine prepared from a group I strain of medium virulence, protected 13 out of 16 buffaloes in Thailand against a dose of virulent organisms that killed both the controls.—W. R. BETT.

JESIERSKI, A., FAIN, A. & DEVIGNAT, R. (1954). Isolation au Congo belge, à partir du cheval, d'une souche insolite de *Pasteurella pestis* var. *orientalis*. [Isolation from a horse in the Belgian Congo of an organism resembling *Past. pestis*.]—*Ann. Soc. belge Med. trop.* **34**, 469-473. [Flemish summary.] **3133**

From a sick horse in Elisabethville, Belgian Congo, an organism was isolated differing from all strains previously known in this region. Biologically abnormal, biochemically and immunologically it was similar to *Past. pestis* var. *orientalis*. Its virulence for lab. animals was attenuated.—W. R. BETT.

MARTHEDAL, H. E. & VELLING, G. (1954). Pasteurellose og pseudotuberkulose hos fjerkræ i Danmark. [Pasteurella infections in fowls in Denmark.]—*Nord. VetMed.* **6**, 651-665. [In Danish. English and German summaries.] **3134**

The incidence of fowl cholera in Denmark declined sharply following the imposition in 1911 of a ban on the import of live geese from abroad. Fowls and other species of poultry were included in the ban in 1925. From then up to 1950 the only outbreaks of pasteurella infection in fowls were sporadic ones in which males were affected in the wattles. Since 1950 occasional outbreaks of a chronic form have occurred and one outbreak of an almost subacute nature.

Epidemiological study of the outbreaks revealed association with purchase of breeding males.

Besides these outbreaks in fowls there were others in pigeons and in canaries and other cage birds; the strains of pasteurella isolated were biochemically typical of *Past. pseudotuberculosis* of rodents.—I. MARTINI.

Rossi, C. (1955). La pseudomonosi dei pulcini. (Tentativi terapeutici con streptomicina e cloramfenicolo.) [Pseudomonas infection in young chickens.]—*Vet. ital.* **6**, 603-609. [English, French and German summaries.] **3135**

R. described *Ps. pyocyanea* infection in 3-day-old chicks. Two groups of 140 each were treated with streptomycin and chloramphenicol respectively. In 20 untreated controls mortality was 90% in 12 days. Streptomycin, in relatively small doses (0.01 g. *per diem*) had a marked therapeutic effect, mortality ceasing after 4 days' treatment.—T. E. GATT RUTTER.

MENOLASINO, N. J., GOLDIN, M. & HOFFMAN, A. (1955). Thermal differentiation between H and O agglutinins. I. *Pseudomonas* and *Alcaligenes*.—*J. Bact.* **69**, 270-274. [Authors' summary modified.] **3136**

Antisera for *Ps. pyocyanea* and *Bacterium alkaligenes*, when diluted with an equal volume of glycerol and heated at 70° C. for 10 to 30 min., showed a distinct drop in O agglutinin titre with no significant change in H titre. The authors discussed the practical applications and theoretical implications of this phenomenon.

POSOKHIN, E. G. (1954). [A suppurative disease of sheep in Siberia caused by a Gram-negative bacterium.]—*Veterinariya, Moscow*. **31**, No. 2, pp. 8-14. **3137**

This suppurative disease, in which multiple abscesses occur in the mouth, cheek, jaw and in the throat, sometimes proceeding to peritonitis, is caused by an organism possibly related to the *Haemophilus* group. It was not observed before 1934. It is enzootic and limited to the season when the animals are housed. Treatment with penicillin or with an aqueous soln. of iodine is effective.—A. MAYR-HARTING.

REDEL, E. DE S. & BERLANGA, E. L. (1954). Identificación, como *Klebsiella*, de un germe aislado en ganado equino. [Isolation of *Klebsiella genitalium* from horses.]—*Bol. Zootec., Cordoba*. **10**, 25-28. **3138**

Klebsiella genitalium was isolated from organs [not specified] of a mare with septicaemia and from the bone-marrow and organs of a foal with congenital arthritis. [See also *V.B. 25*, 2682.]—T. E. GATT RUTTER.

HENNING, M. W. (1954). Immunization against paratyphoid.—*J. S. Afr. vet. med. Ass.* **25**, 61-62. **3139**

H. reports the use on pregnant cows of a vaccine prepared from *Salmonella dublin* with the object of protecting their calves against infection. The pregnant cows receive two injections at intervals of at least 30 days. Results are stated to be good and it is thought that immunization of the pregnant cows will in future largely replace the present unsatisfactory method of immunizing the calves. No details are given as to the method of preparation of the vaccine; it is, however, stated that the vaccine for the cows is approximately seven times the concentration of the vaccine commonly used for immunizing calves.

UEDA, S. (1953). On an occurrence of *Salmonella pullorum* infection in an ewe.—*Kitasato Arch. 15*, 275-277. [In English.] **3140**

A salmonella organism isolated from the heart blood, liver and lungs of a ewe that died was identified as *S. pullorum*.—KOGI SAITO.

EVANS, W. M., BRUNER, D. W. & PECKHAM, M. C. (1955). Blindness in chicks associated with salmonellosis.—*Cornell Vet.* **45**, 239-247. **3141**

An outbreak of blindness in chicks, first noticed at the age of 3 weeks and characterized by hypopyon without conjunctivitis, was associated with *S. typhi-murium* infection. In the majority of birds only one eye was affected. Other symptoms were unthriftiness and a mortality of about 10%. Healing of the eye lesions was apparently rare: common sequelae were synechia, corneal opacity, and atrophy of the eyeball.—R.M.

GWATKIN, R. & GRINWITSCH, C. (1955). Salmonellosis. II. Comparison of whole blood agglutination test and faecal cultures in chickens and turkeys infected by mouth with *Salmonella typhi-murium*.—*Canad. J. comp. Med.* **19**, 113-115. **3142**

S. typhi-murium was administered orally to 100 each of day-old pourets and chicks. During the first 54 days 57 of the pourets and 36 of the chicks died and the organism was recovered from 51 of the former and from 24 of the latter. Agglutination tests at intervals during the experiment revealed a few positive reactors, but at the conclusion the surviving chicks and turkeys had no agglutinins. On P.M. examination they were free from lesions, and *S. typhi-murium* was not recovered. Comparison of the two methods for the detection of carriers

was not possible since the surviving birds had either resisted infection or recovered rapidly.

—A. S. GREIG.

PEREIRA, M. S. & BLAXLAND, J. D. (1955). *Salmonella typhi-murium* infection in man contracted from turkeys.—*Mon. Bull. Minist. Hlth. Lab. Serv.* **14**, 52-55. **3143**

An outbreak of *S. typhi-murium* infection occurred in a flock of young pourets. The farmer, his wife and a farm worker carried out post mortem examinations of some of the casualties. All three became ill with diarrhoea and abdominal pain. *S. typhi-murium* was isolated from stools. In addition, more human cases associated with day-old pourets from the above source occurred on another farm.—D. LUKE.

SMITH, H. WILLIAMS. (1954). Isolation from the lower respiratory tract of chickens of bacteria administered by mouth. [Correspondence.]—*Nature, Lond.* **174**, 45. **3144**

A culture of *S. gallinarum* was administered to groups of 15 chickens in the food, in drinking water, by pipette into the mouth, and by pipette into the oesophagus. The birds were killed 45 min. later and examined bacteriologically. The organism was recovered from the trachea and lungs of those in the first three groups. In no case was the organism found in the lungs and trachea of those given the culture direct into the oesophagus.—D. LUKE.

POHL, G. (1955). Über das Vorkommen von Salmonellen in geklärten Abwässern, ihren Vorflutern, Rieselfeldabflüssen und -drainagen und Klär- und Faulschlamm. [Occurrence of salmonella in effluent waters, sewage and sludge.]—*Berl. Munch. tierärztl. Wschr.* **68**, 163-168. [English summary.] **3145**

In 27 out of 29 tests on material from effluent waters, sewage and sludge, 14 types of salmonella were found. None were animal types. The presence of salmonella in such sources is usually attributable to human carriers. P. discussed the persistence of salmonella organisms under various conditions.—A.S.

PERSIANI, G. & GASPARINI, G. (1953). Ricerca della infezione brucellare nel plasma seminale di toro. [Brucella infection of the seminal fluid of bulls.]—*Clin. Vet., Milano.* **76**, 172-176. [English and French summaries.] **3146**

Examination of serum samples from 157 bulls gave positive titres in 47 cases. Of these latter, 7 had agglutinins in the seminal fluid, in each case at a lower titre than in the serum. None of the bulls had testicular lesions but

there were 17 cases of inflammation of the seminal vesicles. The authors were unable to detect *Br. abortus* in the semen of any of the bulls, either culturally or by animal inoculation.—I. W. JENNINGS.

ECKELL, O. A., VAGNI, O. & VALOTTA, J. R. (1954). Experiencias sobre brucelosis en el caballo. Reacciones orgánicas y funcionales provocadas por el suministro de brucellas abortus (vivas y muertas) por distintas vías. Ensayos de infección experimental. [Experiments on *Brucella* infection in horses. Reactions provoked by the administration of living and dead *Br. abortus*. Attempts at artificial infection.]—Rev. Vet. Milit., B. Aires. 2, 183-187. **3147**

Ten horses were given *Br. abortus* culture, live or dead, subcutaneously or orally. The highest agglutination titres resulted from subcutaneous infection with live organisms. One horse yielded positive blood cultures for over 5 months, but agglutination titres had dropped to 1 : 100 when cultures were still positive. Attempts at transmission by contact with infected horses were unsuccessful, and foals running with inoculated mares did not show evidence of infection.—H. E. HARBOUR.

KERR, W. R. (1955). Vaginal and uterine antibodies in cattle with particular reference to *Br. abortus*.—Brit. vet. J. 3, 169-178. [Abst. from author's summary.] **3148**

K. presented some evidence of the local production of antibodies in the uterus and vagina and discussed their relation to the diagnosis of infertility with particular reference to *Br. abortus*.

It was shown that a two-way barrier exists in the uterus and vagina.

Circulating antibodies produced by the intramuscular injection of live *Br. abortus* did not pass into the lumen of the uterus except during the transient phase of the calving period.

High vaginal and uterine antibody titres which followed instillation into the uterus of a dead *Br. abortus* antigen did not pass into the circulation.

He emphasized the ability of these organs to produce a high concentration of antibodies locally, and its relation to immunity.

He considered that the finding of vaginal antibodies to *Br. abortus* in a herd indicates that a virulent strain is present and that their presence should be a useful aid to diagnosis.

PIOWOWARZCYK, S. (1953). Zastosowanie inaktywowanego szczepu S19 do uodparniania

krów wysoko cielnych i buhajów przeciw brucelozie. [Use of inactivated Strain 19 for immunization of bulls and pregnant cows.]—Roczn. Nauk rol. Ser. E. 66, 21-45. [English and Russian summaries.] **3149**

Of 242 cows in various stages of pregnancy, inoculated with *Br. abortus* Strain 19 inactivated vaccine up to 3 weeks before parturition, only 4 aborted; the organism was isolated from only one of the 4 aborted foetuses. It could not be isolated from the milk, urine, etc. of vaccinated animals. The vaccine was also found to be safe for use in bulls. It remained potent during storage for long periods.—J. R. MITCHELL.

GODGLÜCK, G., ULRICH, F. & WELLMAN, G. (1954). Typenbezeichnungs - Änderung bekannter Brucellose-Laboratoriumsstämme. [Change in the classification of established laboratory strains of brucella.]—Zbl. Bakt. I. (Orig.) 161, 138-145. [English, French and Russian summaries.] **3150**

The authors examined two strains which had previously been classified as *Br. abortus*. One was strain "Klatt", isolated by Poppe in Germany in 1923 from the blood of a farmer, and the other was strain "London", a strain of British origin employed by Lerche & Roots in the preparation of dried brucella antigen. They found that the cultural properties and fermentation reactions of these strains were typical of *Br. suis*, and that granulomatous lesions of the liver and spleen, said to be characteristic of *Br. suis*, were observed in g. pigs inoculated with them. They concluded that *Br. suis* was present in Germany as far back as 1923.—W. G. SILLER.

CEDRO, V. C. F. & JURADO, F. R. (1954). Vacunación de porcinos con una cepa avirulenta de *Br. abortus* (B.V.) y antígeno glucídico lípido de *Br. suis*. [Vaccination of pigs with an avirulent strain of *Br. abortus* and with a *Br. suis* antigen.]—Rev. Vet. Milit., B. Aires. 2, 199-200. [Only abst. given.] [English summary in *Summ. of Communications. 1Ind Pan-Amer. Congr. vet. Med.*, S. Paulo, April 3-10, 1954. Sect. A. pp. 7-8. Mimeographed.] **3151**

A mixed vaccine containing an attenuated strain of *Br. abortus* and a glyco-lipoid *Br. suis* antigen appeared to provoke in pigs a moderate degree of immunity against artificial exposure. The vaccine seemed innocuous and there was no evidence of venereal or contact transmission of the vaccine strain. [Groups of pigs were small and it is doubtful if results could be accepted as conclusive.]—H. E. HARBOUR.

Rossi, P. & KOLOCHINE-ERBER. (1955). La leptospirose bovine clinique existe en France. [The incidence of leptospira infection in cattle in France.]—*Bull. Acad. vét. Fr.* **28**, 63-71. **3152**

The authors gave case reports of leptospirosis (caused by different species) in cattle and considered that these constituted sufficient evidence that the disease existed in France both in a clinical and an occult form.

—T. E. GATT RUTTER.

FORBES, B. R. V., KEAST, J. C., WANNAN, J. S. & LAWRENCE, J. J. (1955). The occurrence of antibodies for the *Leptospira grippotyphosa* sero group in bovine sera in New South Wales. —*Aust. vet. J.* **31**, 69-75. [Authors' summary modified.] **3153**

The authors gave an account of the serological findings on 15 bovine sera, which contained antibodies in titres of 1 : 300 or higher to *L. grippo-typosa* (Moscow V) and *L. bovis* (Bernkopf) [van der Hoeden (*V.B.* **24**, 1412) considers that this species is identical with *L. grippo-typosa* and that the name *L. bovis* should be dropped]. These sera were derived from cattle in a relatively circumscribed area of the south-eastern part of New South Wales. They discussed the significance of these findings and recorded the results of agglutinin-absorption tests on 5 of these sera.

RINGEN, L. M., BRACKEN, F. K., KENZY, S. G. & GILLESPIE, R. W. H. (1955). Studies on bovine leptospirosis. I. Some effects of dihydrostreptomycin and terramycin on the carrier condition in bovine leptospirosis.—*J. Amer. vet. med. Ass.* **126**, 272-276. **3154**

The authors studied the effects of terramycin and dihydrostreptomycin in natural and in experimental *L. pomona* infections. Dihydrostreptomycin eliminated the carrier stage in experimentally infected cattle. The two drugs, singly or in combination, reduced the number of, but did not eliminate, leptospira in the blood in naturally infected cattle.—T. E. GATT RUTTER.

GAYOT, G. (1955). A propos de certains aspects de la symptomatologie de la leptospirose bovine en Tunisie. [Symptomatology of bovine leptospirosis in Tunisia.]—*Rec. Méd. vét.* **131**, 415-419. **3155**

A detailed description of the clin. manifestations of leptospirosis in cattle.

—T. E. GATT RUTTER.

VAN DER HOEDEN, J. (1955). A milk agglutination test in leptospirosis.—*Cornell Vet.* **45**,

190-192. [Author's summary slightly modified.] **3156**

Agglutination tests made with the milk of cattle and goats obtained during outbreaks of *Leptospira grippo-typosa* or *L. canicola* infection gave specific results.

H. recommended the milk test in cases where the collection of blood meets with technical difficulties, especially for screening purposes. Negative results obtained with the milk test, however, are not conclusive.

WISSEMAN, C. L., Jr., TRAUB, R., GOCHENOUR, W. S., Jr., SMADEL, J. E. & LANCASTER, W. E. (1955). Leptospirosis of man and animals in urban, rural and jungle areas of southeast Asia. —*Amer. J. trop. Med. Hyg.* **4**, 29-40. **3157**

Leptospira antibodies were found in about one-fourth of the human population, one-third of the domestic animals and one-sixth of the wild rodents surveyed in Malaya. The incidence in the human population was uniformly high in urban, rural and jungle inhabitants and, in domestic animals, it was particularly high in horses, cattle, pigs and dogs. In the primary jungle the infection was diagnosed in 3 species of rodent, viz., *Rattus mülleri*, *R. rajah* and *R. sabanus*. *L. hebdomadis*, *L. pyrogenes*, *L. icterohaemorrhagiae*, *L. grippo-typosa*, *L. schüffneri* and an apparently new serological type strain were isolated from man and wild rodents, bringing the total number isolated to date to eight known and four unidentified strains. One-fourth of the indigenous population surveyed in British North Borneo had antibodies and a strain of *L. icterohaemorrhagiae* was isolated from a jungle rat (*R. whiteheadi*). Findings suggested a high incidence with multiplicity of strains. In Thailand strains of *L. autumnalis* were isolated from *Bandicota bengalensis* and from another species of bandicoot, while strains of *L. icterohaemorrhagiae* were isolated from *Mus musculus molossinus* and *Apodemus agrarius* in Korea.

—T. E. GATT RUTTER.

BUDDLE, M. B. (1954). "Degraded" strains of *Clostridium welchii* Type C isolated from sheep in New Zealand.—*J. comp. Path.* **64**, 217-224. [Author's summary modified.] **3158**

Cl. welchii Type C had not been recognized in New Zealand before 1948. During studies on clostridial infections of sheep in the Otago and Southland districts over the period 1948-51, "degraded" strains of *Cl. welchii* Type C were isolated from the ileal contents of two ewes that had died from the disease.

The characteristic haemolytic reaction on

ox blood agar produced by the delta toxin facilitated the recognition and isolation of these "degraded" strains. They were of low toxigenicity and pathogenicity for experimental sheep.

The Robinson and Chandler strains were capable of elaborating alpha and delta toxins and the presence of beta and kappa toxins in culture filtrates of the Chandler strain was established by immunological procedures.

The aetiological significance of these "degraded" or variant strains of *Cl. welchii* Type C in mortality among sheep remains to be clarified.

PREVOT, A.-R., SILLIOC, R. & PROUTE, J. (1955). Etude d'un foyer de botulisme bovin dû à *Cl. botulinum* C. [An outbreak of botulism in cattle caused by *Cl. botulinum* type C.]—*Ann. Inst. Pasteur.* **88**, 513-515. **3159**

The authors described an outbreak of botulism among 7 dairy cows at pasture. Of these 6 manifested symptoms of indigestion with cessation of rumination, atony of the rumen, constipation with dry, hard, shining faeces. There was no rise in temperature. Paralysis occurred in two cows which died within a few days. A third died from other complications after three weeks and the rest recovered after treatment with toxoid prepared from Type C toxin.

Cl. botulinum Type C was isolated from the carcass of a cat in an advanced state of putrefaction in the hayloft above the stalls normally occupied by the cows that had died.

—T. E. GATT RUTTER.

VAN RENSBURG, S. W. (1954). Vibriosis as a cause of herd infertility in South Africa.—*J. S. Afr. vet. med. Ass.* **25**, No. 2, pp. 25-35. **3160**

Vibriosis is widespread in the Union. The disease is venereal. Its presence in a herd is characterized by the following syndromes: aberrations in the oestrous cycle, lesions in the tubular genital organs, early death and resorption of the foetus, early undetected expulsion of the foetus, late abortions, birth of weak or dead calves at full term, retention of the placenta. The serum agglutination test is unreliable. The agglutination test with vaginal mucus is the most suitable routine test. Examination of smears from the stomach contents and abomasal mucosa of a newly aborted foetus readily reveals the organism. Regular veterinary examination of the herd is desirable.

Three to four months' sexual rest is recommended for cows and heifers that have calved or aborted and for those with vaginitis. The author described a method of treatment using combined streptomycin (1 g.) and penicillin (300,000 i.u. in 20 ml. sterile water) infusions: the soln. is infused into the uterine horns during oestrus.—W. R. BETT.

MCENTEE, K., HUGHES, D. E. & GILMAN, H. L. (1954). Prevention of vibriosis in inseminated heifers by treating the semen from *Vibrio*-infected bulls with penicillin, streptomycin, and sulphanilamide.—*Cornell Vet.* **44**, 395-402. [Authors' summary modified.] **3161**

All of 94 heifers inseminated with antibiotic-treated semen from *Vibrio*-infected bulls remained free from the infection as evidenced by the failure to isolate the organism from oestral mucus or from the uterus at the time of slaughter and/or to detect vaginal agglutinins. The antibiotic treatment consisted of the addition of 500 units of penicillin, 500 µg. of streptomycin, and 3 mg. of sulphanilamide per ml. of diluted semen. The semen was diluted at least 1 : 25 with yolk-citrate diluent. Except for six samples, the semen was held at least 6 hours before use.

LUCAS, G. C. (1954). Estudio histopatológico de la podovilitis ulcerosa de los vacunos. [Histological study of foot rot in cattle.]—*Gac. vet., B. Aires.* **16**, 149-160. **3162**

An account of a study of the anatomical and histological structure of the ox's foot and the pathological changes which take place in foot rot. L. recorded his clinical observations and discussed treatment.—T. E. GATT RUTTER.

PENNY, R. H. C. (1955). The topical application of 10 per cent chloramphenicol in spirit in the treatment of foot rot in sheep.—*Brit. vet. J.* **111**, 125-126. **3163**

P. confirmed the findings of Stewart [V.B. **25**, 1294] that the topical application of 10% chloramphenicol in propylene glycol was an effective treatment for foot rot in sheep. A single treatment cured 45 out of 50 affected sheep; 4 oz. of the application were sufficient to treat 50 sheep. To obtain maximum effect, sheep should be kept on a dry firm surface for a few hours after treatment.—R.M.

HAWK, H. W., SIMON, J., COHEN, H., McNUTT, S. H. & CASIDA, L. E. (1955). The relative bactericidal activity of the uterine and body cavities of estrous and pseudo-pregnant rabbits.—*J. Amer. vet. med. Ass.* **126**, 268-270. **3164**

As a result of experiments with intra-peritoneal inoculation of *Bact. coli* into pregnant and pseudo-pregnant rabbits the authors considered that the inhibiting action of progesterone on the defence mechanism of the pseudo-pregnant rabbit was not a generalized phenomenon but was localized in the uterus.

—T. E. GATT RUTTER.

MADDY, K. T. (1954). Coccidioidomycosis of cattle in the Southwestern United States.—*J. Amer. vet. med. Ass.* **124**, 456-464. [Author's summary modified.] **3165**

M. described infection in cattle by *Coccidioides immitis* and reported 3,173 cases. It is prevalent in certain areas of California, but apparently does not produce clinical symptoms or mortality. Dusty fattening pens appear to be the most common source of infection.

Cattle seem, usually, to acquire their infections in areas where human infection exists.

M. reported lesions in the pleural cavity, and in the submaxillary, retropharyngeal, and mesenteric lymph nodes. There was some degree of calcification in 15% of the lesions. He described the differential diagnosis of the disease and drew attention to its meat inspection and public health significance. In both human beings and cattle dust appears to be the vehicle of infection.

DAVIS, C. L., ANDERSON, W. A. & McCRRY, B. R. (1955). Mucormycosis in food-producing animals. A report of twelve cases.—*J. Amer. vet. med. Ass.* **126**, 261-267. **3166**

The authors reported *Mucor* infection in a pig and 11 cattle. The fungus was present in TB.-like lesions in the mesenteric or thoracic lymph nodes, suggesting infection by the

See also absts. 3210 (bacterial endocarditis in cattle); 3231 (staphylococcal bacteriophages); 3280 (effect of fungal hydrolysates on dog tumours); 3333 (results of examinations by Utrecht university institute); 3378 (antibiotics against fungi); 3381 (effect of lotagen on bacteria); 3418 (mastitis); 3475 (report, Australia); 3476 (report, New Zealand); 3477 (report, Union of South Africa); 3478 (report, Hong Kong); 3479 (report, Gold Coast); 3480 (report, India); 3481 (report, Republic of Ireland); 3482-3483 (reports, U.S.A.).

DISEASES CAUSED BY PROTOZOAN PARASITES

BALLARINI, G. (1954). Studi sulla biologia del *Trichomonas vitulæ* Mazzanti 1900. XXVIII. Azione delle vitamine B₁₂, H₁ e B_C sullo sviluppo in L.E.S.m. [Biology of *Tr. foetus*. XXVIII. Action of vitamin B₁₂, p-aminobenzoic acid, and folic acid on the growth of *Tr. foetus* in modified L.E.S. medium.]—*Riv. Med. vet., Parma*, **6**, 271-288. [English and French summaries.] **3169**

It was shown that, even in excess, vitamin B₁₂ and folic acid have no particular effect on the

digestive or respiratory routes. The nature of the cattle lesions came to light in the course of the routine examination required in the U.S.A., for all TB.-like lesions found in untested cattle slaughtered under federal inspection. The authors emphasized that as *Mucor* is a common contaminant, the diagnosis of *Mucor* infection is made only with great care.—A.S.

FLORES DEL FIERRO, C. H., GUTIERREZ, J. E. & BIEFANG, B. F. (1954). Paralelismo etiológico entre la tiña del perro y gato y la del niño en la ciudad de Santiago. [Mycological study of ringworm (*Microsporum canis* infection).]—*Rev. vet. Milit., B. Aires*, **2**, 213. [Only abst. given.] [English summary in *Summ. of Communications. IIInd Pan-Amer. Congr. Vet. Med.*, S. Paulo. April 3-10, 1954. Sect. C. p. 7. Mimeographed.] **3167**

M. canis was recovered from 50 children, 52 dogs, and 17 cats affected with ringworm. Observations were made on the survival of spores in samples of human and animal origin. Experimental transmission from cultures of *M. canis* was successful in g. pigs, rabbits and dogs.—H. E. HARBOUR.

VERLINDE, J. D. & DE HAAS, R. A. (1954). Meningitis in the pig apparently due to *Trichosporon cutaneum*.—*Tijdschr. Diergeneesk.* **79**, 106-110. [In English. Dutch summary.] **3168**

The authors described the clinical symptoms of a pig affected with meningitis. Histological examination of the c.n.s. revealed yeast cells in meningeal sections. The organisms were weakly pathogenic for mice and were recovered from necrotic foci in the liver. It was concluded from the evidence that *Trichosporon cutaneum* was responsible for this syndrome.

—G. V. LAUGIER

growth of *Tr. foetus* in pure culture. Excess of aminobenzoic acid, on the other hand, has an inhibitory effect, probably due to its anti-folic acid activity. B. suggested therefore that folic acid is an essential growth factor for *Tr. foetus*.
—I. W. JENNINGS.

ASAMI, K. (1952). Bacteria-free cultivation of *Trichomonas vaginalis*.—*Kitasato Arch.* **25**, 149-156. [In English.] **3170**

Bacteria-free cultures of *Tr. vaginalis* were obtained by incubation in an anaerobic medium consisting of liver infusion, peptone, cysteine hydrochloride and horse serum with the addition of antibiotics.—KOGI SAITO.

LYNCH, J. E., HOLLEY, E. C. & SALMIRS, A. M. (1955). Effect of anisomycin on the growth of *Trichomonas vaginalis*.—*Antibiot. & Chemother.* **5**, 300-304. [Spanish summary p. 314. Abst. from English summary.] **3171**

The viability of *Tr. vaginalis* in simplified trypticase serum medium was studied during exposure to various concentrations of anisomycin. The drug was found to have a trichomonacidal effect down to a concentration of 3.12 µg./ml. after an incubation period of 48 hours.

DEL GIUDICE, V. (1954). Su alcuni aspetti istopatologici della tiflo-epatite dei gallinacei. [Histopathological aspects of blackhead in turkeys].—*Atti Soc. Ital. Sci. vet.* **8**, pp. 488-490. [English and French summaries.] **3172**

In the author's opinion, the bodies observed in stained sections of liver and caecum from turkeys with blackhead are necrotic and regressive liver cells and histiocytes, and not intermediate stages of *Histomonas meleagridis*.

—R.M.

MCGREGOR, J. K. (1954). Further observations on the control of blackhead with nitrofuran compounds.—*Canad. J. comp. Med.* **18**, 397-400. **3173**

N - (nitro - 2 - furfurylidine) - 1 - amino - hydantoin (NF 153) had no therapeutic effect in 1 : 1000 and 1 : 2000 concentrations in the feed. N - (5 - nitro - 2 - furfurylidine) - 3 amino-2-oxazolidone (NF 180) gave inconclusive results when applied prophylactically at 1 : 9000 in the feed continuously. It was more effective in concentrations of 1 : 5000 and 1 : 4500.

—R. GWATKIN.

HORTON-SMITH, C. & LONG, P. L. (1955). Furazolidone and the control of blackhead in turkeys. [Correspondence].—*Vet. Rec.* **67**, 458-459. **3174**

Furazolidone fed continuously at 0.01-0.02% wt./wt. reduced mortality from *Histomonas meleagridis* infection or prevented it altogether. The evidence suggested that the lower level inhibited but did not completely suppress the multiplication of the protozoa. The possible toxicity of the drug is being investigated.—D. LUKE.

WILSON, J. E. & SLAVIN, D. (1955). Hexamitiasis of turkeys.—*Vet. Rec.* **67**, 236-242. **3175**

The authors gave a general account of the history, symptomatology, pathology and P.M. appearances of infectious enteritis of turkeys caused by *Hexamita meleagridis*; they drew attention to some hitherto undescribed aspects of the life history of the parasite.

Chemotherapeutic trials have yielded disappointing results. Not more than 50% of artificially infected pouls recovered following treatment with aminonitrothiazole. Dimbutyltin dilaurate ("tinostat") gave promising results in mild field outbreaks of the disease, but was ineffective in pouls infected with a lethal dose of the parasite.—F.E.W.

HOARE, C. A. (1955). Life cycle of *Hexamita meleagridis*. [Correspondence].—*Vet. Rec.* **67**, 324. **3176**

A severe criticism of a paper by Wilson & Slavin [preceding abst.] and also of a previous paper [Nature, **172**, 1179]. H. considered that the authors had presented insufficient evidence to support their statements concerning the life-cycle of *Hexamita*; and that their figures were unconvincing and therefore unacceptable.

—F.E.W.

GILL, B. S. (1954). Speciation and viability of poultry coccidia in 120 faecal samples preserved in 2.5 per cent potassium dichromate solution.—*Indian J. vet. Sci.* **24**, 245-247. **3177**

The percentage occurrence of coccidia in 120 samples of poultry faeces was:—*E. tenella*, 70; *E. acervulina*, 50; *E. mitis*, 48.4; *E. maxima*, 30.8; *E. praecox*, 29.2; *E. hagani*, 2.5; and *Wenyonella gallinae*, 1.7. The viability of different coccidia in 2.5% potassium dichromate was 1-2 years, after which it declined rapidly and by the end of the 3rd year it was completely lost. G. considered that the pre-patent period varied directly with the age of preservation.—T. E. GATT RUTTER.

GILL, B. S. & RAY, H. N. (1954). Glycogen and its probable significance in *Eimeria tenella* Railliet and Lucet, 1891.—*Indian J. vet. Sci.* **24**, 223-228. **3178**

The authors demonstrated glycogen in the second asexual stages and male gametocytes and gametes of *E. tenella*, but only an insignificant quantity in the sporozoite. The intensity of reaction for the polysaccharide was directly proportional to the physiological activity of the parasite which metabolized its glycogen from

the host's blood sugar. Glycogen was the only carbohydrate detected in the coccidium.

—T. E. GATT RUTTER.

GILL, B. S. (1954). Comparative floating efficiency of copper nitrate, common salt and zinc sulphate solutions as levitating media in a modified Lane's (1923-24) D.C.F. technique for poultry coccidia.—*Indian J. vet. Sci.* **24**, 249-257. **3179**

G. described a modification of Lane's technique for floating coccidia from faeces of poultry and compared the floating efficiencies of aqueous solutions of copper nitrate, zinc sulphate and common salt. Copper nitrate solution was considered the best medium because recovery of the coccidia was quick, visual facility was good, little debris was floated and crystallization was slow.—T. E. GATT RUTTER.

SCHULZ, K. C. A. & THORBURN, J. A. (1955).

Globidiosis—a cause of dermatitis in horses.—*J. S. Afr. vet. med. Ass.* **26**, 39-43. [Authors' summary modified.] **3180**

The authors gave details of the macroscopic and histological changes of globidium infection in a horse, believed to be the first case recorded in the Union of South Africa. From the data it was assumed that only part of the life-cycle occurs in the horse and that the role played by an intermediary host, such as biting or blood-sucking insects, must be considered.

CALDEIRA AREIAS, J. (1955). *Babesielia* sp. em bovinos, na região de Setúbal. [Piroplasmosis in cattle in the Setubal region, Portugal.]—*Rev. Cienc. vet.* **1**, 118-121. [English and French summaries.] **3181**

An account of the clin. symptoms and treatment of *Babesia* infection of cattle in Setubal, Portugal.—T. E. GATT RUTTER.

BATTELLI, C., MEMOLA, G. & PEPE, M. (1955). Segnalazione della theileriosi bovina da *Th. annulata* (sin. *Th. dispar*) in Puglia. [*Theileria annulata* infection in Italy.]—*Vet.*

See also *absts.* **3244** (toxoplasmosis in chinchillas); **3475** (report, Australia); **3476** (report, New Zealand); **3477** (report, Union of South Africa); **3479** (report, Gold Coast); **3486** (toxoplasmosis).

ital. **6**, Suppl. to No. 2. 264-267. [English, French and German summaries.] **3182**

Three out of a group of 10 cattle became ill with loss of appetite, cessation of rumination, fever, and depression. *Th. annulata* was seen in the r.b.c. of the affected animals. Two of the cows died and the third recovered after treatment with quinuronium sulphate ("acaprin"). Vigorous anti-tick measures prevented further spread of the disease. Ticks found on the animals were mainly *Hyalomma* species, but one *Rhipicephalus sanguineus* was found.—I. W. JENNINGS.

HARBOE, A. & ERICHSEN, S. (1955). The immunologic response of chickens to experimental infection with toxoplasms.—*Nord. Vet. Med.* **7**, 41-51. [In English, German and Norwegian summaries.] **3183**

I/d inoculation of mouse peritoneal exudate produced an intense local inflammatory reaction in previously uninfected chickens. This reaction (which did not occur in birds which had had previous infection) was considered as proof of susceptibility of chickens to experimental toxoplasmosis. There was little, if any, serological response. Chickens consumed, with impunity, mouse viscera containing organisms of human toxoplasmosis.—T. E. GATT RUTTER.

SPISNI, D. (1954). Gli infusori ciliati del rumine di pecore alimentate con insilato A.I.V. [Infusoria of the rumen of sheep fed lucerne ensiled by the A.I.V. method.]—*Atti Soc. Ital. Sci. vet.* **8**, pp. 229-231. [English and French summaries. English summary modified.] **3184**

A decrease in the number of rumen infusoria was noted in sheep fed lucerne, ensiled by the addition of mineral acids, for a period of 35 days. The decrease corresponded with a decrease in the pH of the rumen contents. The predominant genus of infusoria present in the rumen before and after feeding silage was *Diplodinium*.

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

MAGLIONE, E. & RAGNI, M. (1955). Contributo allo studio della eredo immunità nell'afte epizootica. Nota II. [Heredity of immunity to foot and mouth disease. Part II.]—*Zoot-profilassi.* **10**, 267-279. [English and French summaries.] [For part I, see *V.B.* **25**, 975.] **3185**

Calves born to cows immunized against F. & M. disease during pregnancy had a high

degree of passive immunity which lasted for two months. This resistance then diminished and at 3 months it was completely lost.

—T. E. GATT RUTTER.

DACORSO, P., Jr. & CUNHA, R. G. (1954). Lesões observadas em coelhos recém-nascidos inoculados com amostras de três tipos de

virus de febre aftosa. [Infection of new-born rabbits with foot and mouth disease virus.]—*Rev. bras. Biol.* **14**, 343-353. [English and French summaries.]

3186

The authors set up experimental F. & M. disease in new-born rabbits with A, O and C types of virus. The incubation period for the first passages was 40-72 hours and in subsequent ones it was 21 hours. The duration of the disease was 1-4 days in early passages and 24 hours in later ones. The main symptoms were difficulty in locomotion followed by paresis. Degenerative and necrotic lesions, followed by calcification, were observed in the skeletal striated muscles. Non-specific inflammatory reactions, with some regeneration of muscle fibre and, very occasionally, fibrosis were also noticed.—T. E. GATT RUTTER.

GIROUD, P. & CIACCIO, G. (1954). Adaptation au mérion du virus aphéteux. [Adaptation of the foot and mouth disease virus to the gerbil.]—*C. R. Soc. Biol., Paris.* **148**, 31-32.

3187

Using strain C virus passaged through g.pigs daily (351 passages in 13 months), 8 adult gerbils were used in transmission experiments; one out of two inoculated in each passage died in 72 hours. Similar experiments with unweaned gerbils and with young gerbils, 1-4 months old, yielded encouraging results.

—G. V. LAUGIER.

CIACCIO, G. & GIROUD, P. (1954). Les passages répétés du virus aphéteux C plante de cobaye-péritoine de souris ne permettent pas l'adaptation d'une souche viscérotrope à la souris. [Failure to adapt a g. pig viscerotropic strain of foot and mouth disease virus to adult mice.]—*C. R. Soc. Biol., Paris.* **148**, 77-78.

3188

The authors described attempts to adapt to adult mice a viscerotropic g.pig strain of F. & M. disease virus by i/p inoculation of plantar pad material or of blood. The majority of the inoculated mice died in 24-48 hours and a positive reaction occurred in a high proportion of cases in the plantar pads of g. pigs inoculated with virus material from them, irrespective of whether the mice had received viscerotropic virus alone or together with a vaccine prepared from a neurotropic strain. However, in alternate g. pig-mouse passage (carried to 19 passages) the highest rate of infection in the mice was obtained towards the 10th passage (6 out of 9 positive), the rate of infection decreasing gradually thereafter. It was concluded that the virus could not be adapted to adult mice.

—G. V. LAUGIER.

I.—GILLESPIE, J. H. (1955). Further studies with foot-and-mouth disease viruses in day-old chicks.—*Cornell Vet.* **45**, 160-169.

3189

II.—GILLESPIE, J. H. (1955). Propagation of type C foot-and-mouth disease virus in eggs and effects of the egg-cultivated virus on cattle.—*Ibid.* 170-179. [Author's summaries slightly modified.]

3190

I.—F. & M. disease virus types A, O, and C, isolated in the Netherlands, were each transferred in day-old chicks for 35, 24, and 20 serial passages, respectively, by i/v inoculations with suspensions of infected gizzard muscle. The virus used to initiate propagation in chicks had been tissue-cultured. When bovine-propagated virus was used, only type O was transferred successfully. In chicks no mortality occurred. P.M. examination revealed macroscopic lesions in the gizzard of most chicks, and occasionally heart lesions were seen. A determination of the amount of virus in various tissues showed the greatest concentration to be in the gizzard, and this was attained 2 days after inoculation. When fowls aged 6 weeks were inoculated with type A virus, neutralizing antibodies were found 28 days later. Types A and C chick-propagated viruses were found to be pathogenic when inoculated into cattle.

II.—F. & M. disease virus, type C, was cultivated in eggs for 30 direct serial passages. It was accomplished when virus, that had been transferred for seven passages in chicks, was inoculated on the chorioallantoic membrane of eggs embryonated for 14 days and the material collected at 3-day intervals for subsequent transfers. Attempts to grow a Dutch type C tissue-culture virus, which is the parent strain of type C chick-propagated virus, by the same method failed.

Mortality started in the third passage, and deaths occurred between the 48th and 144th hours after inoculation. Infected embryos had oedema and haemorrhages in the skin, haemorrhagic liver and kidneys, serous or blood-tinged fluid in the body cavity and pericardial sac, and, occasionally, swollen and white areas in the heart muscle. The greatest conc. of virus was found in the heart, although the glazard muscle contained appreciable amounts, with less in the extra-embryonic tissues. The embryonic tissues that remained after removal of the head and appendages had a virus end-point greater than $LD_{50} 10^{-5}$ by titration in unweaned mice. More virus was found 8 days after inoculation than on the first or second day.

Six cattle were inoculated with egg-cultivated virus; two that received 5th-egg-

passage virus developed lesions and also two given 11th-egg-passage virus. The other two cattle, given the 25th-egg-passage virus, showed no lesions, but these animals and those given 11th-egg-passage virus were immune when later inoculated with virulent virus. Also, the two cattle given 11th-egg-passage virus developed neutralizing antibodies.

SCHULTZE-PETZOLD, H. (1955). Virusbedingte Bläschenkrankheiten bei den landwirtschaftlichen Nutzieren unter besonderer Berücksichtigung der Differentialdiagnose. [Differential diagnosis of vesicular virus diseases in farm animals.] *Berl. Münch. tierärztl. Wschr.* **68**, 205-208. [English summary.] **3191**

The author discussed the differential diagnosis of F. & M. disease, vesicular exanthema, and vesicular stomatitis. He gave a small table showing how these conditions are readily distinguished by a comparison of the susceptibilities of pigs, cattle and horses when given the virus by specified routes.—A.S.

PAARMANN. (1955). Zur Tollwut der Vögel. [Rabies in fowls in Germany.]—*Rdsch. Fleischbesch. Trichinensch.* **7**, 22-23. **3192**

P. reported the occurrence of rabies in domestic fowls in Westphalia. He discussed previous reports on rabies in domestic ducks, geese and fowls as well as wild birds, such as buzzards, hawks, magpies, owls, crows and sparrows. Nervous symptoms are prominent and birds that are normally shy may attack not only other animals but also human beings.

—W. G. SILLER.

ANON. (1954). Expert committee on rabies. Second report.—*Tech. Rep. Wld Hlth Org.* No. 82, pp. 27. **3193**

Vaccination of dogs in Israel and Malaya, using a vaccine prepared from infected chick embryos, proved most successful. The field trial of antirabies hyperimmune serum will have to continue for some time yet. Post-exposure treatment in man is described and also the handling of outbreaks in the animal population. Particular reference is made to vaccination of dogs and control of wild-life vectors and the handling of animals bitten by rabid animals. Diagnosis is dealt with at length. The report concludes with suggestions for future research.—W. S. MARSHALL.

PULLAR, E. M. & MCINTOSH, K. S. (1954). The relation of Australia to the world rabies problem.—*Aust. vet. J.* **30**, 326-336. [Authors' summary modified.] **3194**

The authors re-examined the reports of the outbreak of rabies in Hobart, Tasmania, in 1866-67 and concluded that there is no reason whatsoever to doubt the official diagnosis made at the time.

They discussed the world rabies situation, with particular reference to the urban and sylvan epidemiological types, rabies in wild fauna and the possible existence of virus reservoirs. They also discussed immunity, types of vaccine, vaccine standardization and vaccination risks; the general principles of control; anti-rabies measures in Australia, with particular reference to import restrictions, the risk of introduction of rabies and possible action if that should occur.

BEDNARA, M. (1954). Die Beeinflussung des Virus fixe durch Hyaluronidase. [The influence of hyaluronidase on fixed rabies virus.]—*Z. Hyg. InfektKr.* **138**, 467-474. **3195**

In small-scale tests, the addition of normal dog saliva either undiluted or diluted 1 : 1 with saline, to an equal volume of a 1 : 10 dilution of rabies fixed virus increased its virulence for g. pigs and mice by 50% and 66% respectively when inoculated s/c. The incubation period was slightly lengthened in g. pigs.—F.E.W.

OTT, G. L. & YAILLEN, A. J. (1955). Rabies immunization with water-in-oil emulsions.—*Vet. Med.* **50**, 83. **3196**

In trials of modified live virus and a vaccine of formol-killed virus suspended in water-in-oil emulsion the authors found that both produced about the same degree of immunity in g. pigs.—A.S.

DALLDORF, G. & GIFFORD, R. (1955). Recognition of mouse ectromelia.—*Proc. Soc. exp. Biol., N.Y.* **88**, 290-292. **3197**

The authors identified as mouse ectromelia two viruses that had been isolated in different parts of Europe from human beings with disease of the c.n.s. They described the behaviour of the viruses in young mice following intracerebral inoculation. All the mice used were destroyed on account of the risk of introducing the infection into healthy stocks.

—F.E.W.

HILL, W. F. & RHEINS, M.S. (1954). Influence of cortisone, piromen and ACTH on susceptibility of embryonated eggs to fowl-pox virus.—*Proc. Soc. exp. Biol., N.Y.* **87**, 304-306. **3198**

Cortisone decreased the susceptibility of the chorio-allantois to infection with fowl pox virus. Piromen (a pyrogenic polysaccharide of

bacterial origin) and adrenocorticotropic hormone did not alter the infectivity of the virus.—D. LUKE.

HARFORD, C. G., HAMLIN, A. & PARKER, E. (1955). Electron microscopy of early cytoplasmic changes due to influenza virus.—*J. exp. Med.* 101, 577-589. 3199

By means of electron microscopy, inclusion bodies were demonstrated in ciliated and non-ciliated cells of the bronchial epithelium of mice infected by inhalation of aerosols of influenza virus. The same qualitative results were obtained with 3 strains of mouse-adapted type A virus and with 2 unadapted strains. The inclusion bodies consisted of particles equal in size to those of the influenza virus. Linear formations, considered to be abnormal forms of endoplasmic reticulum, were also observed. Well developed microvilli (without evidence of viral growth) were seen on the ciliated borders of the cells.—T. E. GATT RUTTER.

CAIRNS, H. J. F. (1954). The limited growth of influenza viruses in the mouse brain.—*Aust. J. exp. Biol. med. Sci.* 32, 123-128. 3200

Mice were inoculated intracerebrally with diluted and undiluted influenza PR8 virus and haemagglutinin titres and infectivity titres were determined at intervals. A large inoculum produced less "incomplete" virus than a small inoculum produced "complete" virus. This result suggests that the small inoculum did not produce any "incomplete" virus. In another experiment WS virus was inoculated intracerebrally into mice on two occasions 13 hours apart. The second inoculum went through its single cycle of "complete" virus production in brains already containing virus at the end of a growth process.

The limited growth of unadapted strains is not associated with the development, by the brain, of refractoriness to further multiplication of a second inoculum.—J. H. WHITTEM.

I.—FINTER, N. B., LIU, O. C. & HENLE, W. (1955). Studies on host-virus interactions in the chick embryo-influenza virus system. X. An experimental analysis of the von Magnus phenomenon.—*J. exp. Med.* 101, 461-478. 3201

II & III.—PAUCKER, K. & HENLE, W. (1955). Studies on host-virus interactions in the chick embryo-influenza virus system. XI. The effect of partial inactivation of standard seed virus at 37° C. upon the progeny. XII. Further analyses of yields derived from heat-inactivated standard seeds.—*Ibid.* 479-492 & 493-506. 3202

I.—The authors examined factors contributing to the von Magnus phenomenon, including the role of inactivated virus; quantitative aspects of host cell-virus interrelationships; and interrelationships between infectivity, haemagglutinin concentrations and the ratio of infectivity to haemagglutinin titre in the inocula and progeny viruses. [See also *V.B.* 19, 2164; 20, 91 & 92; 22, 3084-3086; 25, 992 & 993.]

II.—In a further study of the von Magnus phenomenon the authors compared the growth curves, in de-embryonated eggs, of infectious influenza virus partly inactivated by exposure *in vitro* to 37° C. for various periods, with the growth curves of virus of comparable infectivity and haemagglutinin titre, obtained by serial passage of undiluted allantoic fluid. Although the haemagglutinin titres at 2-hourly harvests were high and practically identical, the heat-treated virus gave a much higher yield of infective virus. When either the heat-treated or the "undiluted-passaged" virus was diluted 100- or 1000-fold before inoculation the resultant virus at harvest was almost standard, very few non-infective particles being found.

III.—The authors examined in detail the infectivity and haemagglutinin titres of virus harvests following the inoculation into eggs of standard influenza virus heated for various times at 37° C. Corresponding to the decrease in infectivity from 10⁹-10⁸ ID₅₀, which resulted from the heating, there was a million-fold decrease in the yield of infective virus, but the non-infective haemagglutinating virus (NIHA) decreased only by a factor of 10. As a result of this the proportion of NIHA in the yield rose sharply while the total virus yield slowly decreased.

The quantities of infectious virus produced per unit of infectious virus injected remained constant throughout the range, regardless of the increasing proportion of heat-inactivated virus in the inoculum.

The authors discussed their findings.—A.S.

CHAMBERLAIN, R. W. & SIKES, R. K. (1955). Laboratory investigations on the role of bird mites in the transmission of eastern and western equine encephalitis.—*Amer. J. trop. Med. Hyg.* 4, 106-118. [Authors' summary modified.] 3203

Large numbers of *Dermanyssus gallinae*, *Bdellonyssus bursa*, and *Bd. sylviarum* were fed upon chicks infected with the viruses of Eastern and Western equine encephalitis, then re-fed periodically in mass upon normal chicks. Samples of mites were tested for virus after different periods of incubation. Chicks, half a

day old proved to be more sensitive in detecting virus than mice.

The viruses could not usually be recovered from the mites for more than a few days following the infected blood meal. After numerous trials involving mass feedings of many thousands of mites upon 125 chicks, two apparent virus transmissions to chicks by mite bite were accomplished, one of EEE by *D. gallinae* after 26 days' extrinsic incubation, and one of WEE by this same mite species after 13 days' extrinsic incubation.

On one occasion, a trace of WEE virus was detected in excreta of 50 *D. gallinae*, tested after 6 days' accumulation at 80° F. following an infected blood meal. A low concentration of WEE virus was also recovered from protonymphs of *Bd. sylviarum* hatched from eggs laid after an infected blood meal. All other similar tests were negative.

In view of the low susceptibility of these three species of mites to EEE and WEE infection, it is concluded that any role they might play in perpetuating these viruses in nature must be a minor one.

REEVES, W. C., HAMMON, W. McD., DOETSCHMAN, W. H., MCCLURE, H. E. & SATHER, G. (1955). Studies on mites as vectors of Western equine and St. Louis encephalitis viruses in California.—*Amer. J. trop. Med. Hyg.* **4**, 90-105. [Authors' summary slightly modified.]

3204

Virus tests of over 130,000 *Bdellonyxus sylviarum* and *Dermanyssus americanus* collected from wild bird nests, 1946-49, resulted in 9 isolations of Western equine encephalomyelitis virus, 3 of St. Louis encephalitis virus, and in one instance of both viruses from a single sample pool. The infected mites, principally *Bd. sylviarum*, were collected from nests of the yellow-headed blackbird, Brewer blackbird, tricoloured blackbird and English sparrow. Virus isolations did not correlate with the bird species from which the largest mite samples were collected, nor with the distribution of neutralizing antibodies in six common species of birds.

Tests of the ability of *D. gallinae* and *Bd. sylviarum* to become infected with and to transmit St. Louis encephalitis or Western equine encephalomyelitis viruses yielded no conclusive evidence of successful long-term infection of these mites with virus or of biological transmission.

The importance of these two mite species as reservoirs or vectors of these two encephalitis viruses must be seriously questioned.

KRAUSS, S. & CENA, M. (1955). Przebieg i rozprzeinstrzenie zakaznej niedokrwistosci koni w Polsce. [Course and incidence in Poland of equine infectious anaemia.]—*Méd. vét., Varsovie.* **11**, 74-77.

3205

In Poland, E.I.A. is endemic in 3 areas from which it is transmitted sporadically to other parts of the country. The soil in those 3 areas is deficient in Ca and trace elements. In order to control the disease in the endemic areas the authors recommend the use of fertilizers to correct soil deficiencies. In regions where the disease occurs sporadically destruction of the affected animals should be speeded up. The control of insects which act as vectors of the disease is also advocated.—M. GITTER.

STEIN, C. D., MOTT, L. O. & GATES, D. W. (1955). Some observations on carriers of equine infectious anemia.—*J. Amer. vet. med. Ass.* **126**, 277-287. [Authors' summary slightly modified.]

3206

Data are reported indicating that horses making an apparent recovery after being experimentally infected with equine infectious anaemia may remain carriers of the virus for 5 months to more than 18 years.

The histories of 2 virus carriers that harboured the virus in their blood stream for approx. fifteen and nine-tenths years and eighteen and a half years, respectively, are discussed. Also cited are 13 clinically recovered cases which had been experimentally infected with different strains of virus and were demonstrated to be carriers for 5 to 48 months.

Evidence is presented to indicate that : (1) horses with subclinical equine infectious anaemia are inapparent carriers and that the active form of the disease may be transmitted to susceptible horses by injection of their blood in one or two serial passages ; (2) in carriers of long standing, there appears to be a gradual decrease in the degree of virulence of the blood ; (3) a horse which develops the disease in the carrier form may manifest no active symptoms for a number of years, and may finally die following an acute flare-up ; (4) a small percentage of carriers may make a complete recovery from the disease, with a complete disappearance of virus from the blood stream : of 3 such cases encountered, 2 again became susceptible and one was immune ; (5) clinically recovered carriers and horses affected with the subclinical form of the disease are usually resistant to re-infection—such animals are in a state of premunition, as attempts to provoke a fresh attack by injection of moderate amounts of the same strain of virus with which they were

originally infected usually produced little or no reaction.

SAMBORSKI, Z. (1955). Zakazny niezbyt pochwy u krów (*Colpitis granulosa infectiosa bovinum*, *Colpitis catarrhalis bovinum*). [Infectious catarrhal vaginitis in cows.]—*Méd vét., Varsovie*. **11**, 105-107. **3207**

A general account, with discussion of the literature, of a contagious disease characterized by the formation of small, millet size nodules on the vaginal mucosa and by mucopurulent vaginal discharge. Bulls can transmit the disease without manifesting clin. symptoms. General systemic symptoms seldom occur but the milk yield may be lowered. It does not cause abortion, but reflex spasm of the cervix often hampers insemination. Spread may occur through coitus, contaminated bedding, surgical instruments, etc. The efficacy of treatment is difficult to assess as many cases resolve spontaneously. Cleanliness and hygiene are important factors in checking the spread of the disease. Isolation and sexual rest of the affected animals are recommended.—M. GITTER.

MESSIERI, A. (1954). Ornitosi (Miyagawanellosi) nei bovini. Segnalazione clinica. [Pneumoperenteritis of cattle caused by a virus of the psittacosis group. Clinical note.]—*Atti Soc. Ital. Sci. vet.* **8**, 702-704. [English and French summaries.] **3208**

M. described a highly infectious pneumoperenteritis syndrome in adult cattle in the province of Bologna, Italy, characterized by catarrhal enteritis and broncho-pneumonia. The acute stage of the disease lasted 8-10 days and convalescence was often prolonged: mortality was low. Complement-fixation tests for psittacosis with blood from cattle from 4 separate outbreaks were only weakly positive (maximum 1:16), but agglutination tests gave titres of up to 1:512.—R.M.

BAGDONAS, V. & OLSON, C., Jr. (1954). Observations on immunity in cutaneous bovine papillomatosis.—*Amer. J. vet. Res.* **15**, 240-245. **3209**

Two commercial wart vaccines were used; one consisted of ground bovine papilloma tissue and the other was prepared from chick embryos which had been inoculated with papilloma material. Only the former vaccine appeared to have some immunizing value, but complete protection was not obtained. Recovery from natural infection did not produce complete immunity.—D. LUKE.

BROWN, J. M. M. (1955). Bacterial endocarditis in cattle—a possible sequel to three-day stiff sickness.—*J. S. Afr. vet. med. Ass.* **26**, 29-37. **3210**

B. described six cases of chronic endocarditis in cattle and discussed some of the literature on its symptomatology, aetiology and possible relationship to "three-day fever".

—T. E. GATT RUTTER.

GEAR, J., DE MEILLON, B., LE ROUX, A. F., KOFSKY, R., INNES, R. R., STEYN, J. J., OLIFF, W. D. & SCHULZ, K. H. (1955). Rift Valley fever in South Africa. A study of the 1953 outbreak in the Orange Free State with special reference to the vectors and possible reservoir hosts.—*S. Afr. med. J.* **29**, 514-518. **3211**

Rift Valley fever was first recognized in S. Africa in 1951, and caused an outbreak among sheep in the south-west of the Orange Free State in 1952. The authors found that *Aedes caballus* and *Culex theileri*, mosquitoes prevalent in the area, both harboured the virus, and that the former was able to transmit infection to mice while feeding. In a search for reservoir hosts, livers from 20 species of wild birds and mammals were examined, and blood samples were used in mouse protection tests. Of these only a polecat (*Ictonyx striatus*) was positive to the test. This was the only specimen of this species examined. The virus was not found in arthropods associated with the birds and mammals.—A.S.

SAITO (1954). Pneumonie contagieuse de la chèvre. [A contagious pneumonia of goats, imported into Japan from the U.S.A. and caused by a virus of the psittacosis-lymphogranuloma group.]—*Bull. Off. int. Epiz.* **42**, May, pp. 676-691. [English summary.] **3212**

Contagious pneumonia, found among 2,061 goats imported into Japan from the U.S.A. in 1947-49, spread all over the country. The disease is caused by a virus, filtrable through Berkefeld V and N, 0.207 μ and 0.515 μ in size, and is transmissible to cattle, horses, sheep, dogs, cats, rabbits, g. pigs, pigs, and mice. Morphologically and histopathologically the virus belongs to the psittacosis-lymphogranuloma group.—W. R. BETT.

DETRAY, D. E. & SCOTT, G. R. (1955). The effect of hyperimmune hog cholera serum on the virus of African swine fever.—*J. Amer. vet. med. Ass.* **126**, 313-314. **3213**

Working in Kenya the authors found that swine fever hyperimmune antiserum, obtained

from the U.S.A., failed to neutralize the virus of African swine fever *in vitro*. It was also ineffective in small groups of pigs when inoculated simultaneously with the virus.

—F.E.W.

BANKOWSKI, R. A. & PFEIFER, R. W. (1955). **I. Cultivation of vesicular exanthema virus *in vitro* using pig embryo tissues.**—*Proc. Soc. exp. Biol., N.Y.* **88**, 209-211. [Authors' summary and conclusions copied *verbally*.] **3214**

Rapid, simple, and inexpensive propagation of vesicular exanthema virus of pigs was obtained in a medium of Baker's fluid containing minced pig embryos harvested from sows in the third to the fifth week of gestation.

KUREK, C. & KANICKI, M. (1955). Enzootyczne zapalenie pluc u swin w zespole tuczarn. [An outbreak of enzootic pneumonia in a piggery.]—*Méd. vét., Varsovie.* **II**, 133-135. [English and Russian summaries.] [Abst. from authors' summary and conclusions.] **3215**

An outbreak of pneumonia occurred in a piggery 6-7 days after the arrival of a new batch of pigs which had been vaccinated against swine erysipelas 5 days before they began their journey. The first casualties were among the new arrivals, the other pigs becoming ill a few days later. Within 3 months 38% of the young pigs (weighing 20-30 kg.) and 5% of the older ones (50-80 kg.) died or were slaughtered *in extremis*. P.M. examination revealed pneumonia in every case, but in a few instances septicaemic lesions were also present. Animal inoculation tests eliminated the possibility of swine fever. *Pasteurella septica* was isolated from the lungs of one pig, but otherwise the bacteriological examination was negative. The authors concluded that the period immediately after vaccination is very critical for the flare-up of latent infections. They emphasized the adverse effect of transportation in such cases.

—M. GITTER.

LANNEK, N. & WESSLEN, T. (1955). Histological examinations of tissue cultures inoculated with a cytopathogenic agent from swine enzootic pneumonia.—*Acta path. microbiol. scand.* **36**, 343-351. [In English.] **3216**

An account of a histological study of the cytopathogenic changes associated with the growth of the virus of enzootic pneumonia of swine in bovine tissue culture tubes, using bovine skin, the collodium embedding technique, and various staining methods. The

authors described and illustrated the appearance and fate of minute particles, homogeneous with regard to size, shape, and staining properties. They may possibly be elementary bodies.

—W. R. BETT.

I.—LAUDER, I. M., MARTIN, W. B., GORDON, E. B., LAWSON, D. D., CAMPBELL, R. S. F. & WATRACH, A. M. (1954). A survey of canine distemper.—*Vet. Rec.* **66**, 607-611. **3217**

II.—LAUDER, I. M., MARTIN, W. B., GORDON, E. B., CAMPBELL, R. S. F. & WATRACH, A. M. (1954). A survey of canine distemper.—*Ibid.* 623-632. **3218**

I & II.—These papers report an attempt to correlate the clinical and pathological findings in 50 dogs with conditions diagnosed clinically as distemper.

Forty-one of the cases were diagnosed as distemper because they manifested 4 of the following signs:—(1) Respiratory involvement (a cough with or without quickened or exaggerated breathing); (2) diarrhoea; (3) catarrhal discharge at the eyes or nose; (4) hyperkeratosis of the pads; (5) nervous signs (fits, chorea, or a degree of posterior paralysis); (6) duration of at least 3 weeks. The remaining 9 had hyperkeratosis of the pads and only 2 of the remaining signs.

The authors presented their clinical and P.M. findings in these dogs and discussed them at length. Clinical diagnosis was supported by P.M. findings in every case. They considered that the single term "distemper" should be used to cover all the conditions encountered in their study.

They found toxoplasma infection in 3 out of the 50 cases, and considered this to be of special note. They intend to publish later their observations on the relationship between distemper and toxoplasmosis.—A.S.

MORRIS, J. A., AULISIO, C. G. & McCOWN, J. M. (1955). A complement-fixation test for canine distemper.—*Cornell Vet.* **45**, 182-189. [Authors' summary slightly modified.] **3219**

A complement-fixing antigen prepared from a mixture of chorioallantoic membranes and allantoic fluids of eggs infected with distemper virus has been developed which reacts specifically with sera of ferrets and dogs immunized with egg-adapted distemper virus.

The c.f. test may be of value for the diagnosis of recent distemper in ferrets and dogs. In most instances specific c.f. antibodies persisted in dogs for about 2 months and in ferrets for a shorter period following vaccination with egg-propagated virus.

OTT, R. L., GORHAM, J. R. & GUTIERREZ, J. C. (1955). Distemper in dogs. I. Virus-neutralizing antibodies in serum collected from healthy dogs.—*J. Amer. vet. med. Ass.* **126**, 290-293. **3220**

The distemper antibody content of the serum of vaccinated and non-vaccinated dogs was surveyed. It did not vary with breed, sex or age and reached its highest level during the second month after vaccination. It was higher in town dogs than in country dogs and the authors considered that this was due to the former being in more frequent contact with natural infection.—T. E. GATT RUTTER.

CABASSO, V. J., DOUGLAS, J. M., STEBBINS, M. R. & COX, H. R. (1955). Propagation of canine distemper virus in suckling hamsters.—*Proc. Soc. exp. Biol., N.Y.* **88**, 199-202. [Authors' summary modified.] **3221**

A strain of chick embryo-adapted dog distemper virus was propagated in unweaned hamsters through 16 serial transfers. The virus caused death in this host in 4-7 days following inoculation. Proof of the identity of the hamster-propagated agent was obtained from serum neutralization tests in hamsters and from the successful immunization of ferrets.

JACOTOT, H., VALLEE, A. & VIRAT, B. (1954). Sur un cas de myxomatose chez le lièvre. [A case of myxomatosis in a hare.]—*Ann. Inst. Pasteur.* **86**, 105-107. **3222**

An account of myxomatosis in a hare. The virus was isolated and proved to be highly virulent for rabbits. In experimental transmission to other hares the infection proved to be non-progressive.—G. V. LAUGIER.

LOCKLEY, R. M. (1955). Failure of myxomatosis on Skokholm island. [Correspondence.]—*Nature, Lond.* **175**, 906-907. **3223**

L. commented on the failure of myxomatosis to become established on the island of Skokholm, Pembrokeshire. Attempts to introduce the disease there in 1936, '37 and '38 were all unsuccessful. He thought that this was explained by the absence of the flea, *Spilopsyllus cuniculi*. Rabbits on the neighbouring island of Skomer, where the flea is fairly common, have been decimated by the disease.—A.S.

JACOTOT, H., TOUMANOFF, C., VALLEE, A. & VIRAT, B. (1954). Transmission expérimentale de la myxomatose au lapin par *Anopheles maculipennis atroparvus* et *Anopheles stephensi*. [Experimental transmission of myxomatosis by *Anopheles maculipennis*

atroparvus and *A. stephensi*.]—*Ann. Inst. Pasteur.* **87**, 477-485. **3224**

A. maculipennis atroparvus and *A. stephensi* transmitted myxomatosis to unaffected rabbits. A single puncture by *A. maculipennis* was sufficient to transmit the disease and one insect was found to inoculate the virus into several hosts.—JAS. G. O'SULLIVAN.

THOMPSON, H. V. (1955). The wild European rabbit and possible dangers of its introduction into the U.S.A.—*J. Wildlife Mgmt.* **19**, 8-13. **3225**

The European rabbit is compared with the native N. American cottontail. It is impossible to forecast the results of its introduction to the U.S.A., but as myxomatosis at present exists in California in both native and domestic rabbits, it is almost certain that any introduced European strain would in time become infected. The cottontail is resistant to the disease.

—W. S. MARSHALL.

I.—KILHAM, L. & DALMAT, H. T. (1955). Host-virus-mosquito relations of Shope fibromas in cottontail rabbits.—*Amer. J. Hyg.* **61**, 45-54. **3226**

II.—KILHAM, L. (1955). Metastasizing viral fibromas of grey squirrels: pathogenesis and mosquito transmission.—*Ibid.* **55**-63. **3227**

I.—The authors found that 3 mosquito species, *Anopheles quadrimaculatus*, *Culex pipiens*, and *Aedes triseriatus*, transmitted Shope's fibroma virus from rabbit to rabbit as effectively as did *Aedes aegypti*. A young rabbit inoculated with Shope's fibroma virus when one month old had fibromas which were still infective for *A. aegypti* 10 months later. The virus was found only in the head-parts of vector mosquitoes. The authors discussed the possibility that the virus may multiply within the mosquito.

II.—In work on the fibroma of grey squirrels (*Sciurus carolinensis*), which resembles Shope's fibroma of rabbits, the authors found that unweaned squirrels were more susceptible than adults to s/c inoculation of the virus. Some of them developed widespread metastases about 4 weeks after inoculation and died, while others developed fibromas which regressed after a few weeks. Serum specimens collected during convalescence contained neutralizing antibody.

Two mosquitoes, *Aedes aegypti* and *Anopheles quadrimaculatus*, transmitted the disease under experimental conditions.

The virus was taken through 4 passages in woodchucks (*Marmota monax*), the first two

passages producing larger tumours than subsequent ones.—A.S.

GEURDEN, L. M. G. & DEVOS, A. (1955). Laboratoriumsdiagnose der atypischen Geflügelpest. [Laboratory diagnosis of Newcastle disease.]—*Wien. tierärztl. Mschr.* **42**, 65-68. [English, French and Italian summaries.] **3228**

Haemagglutination of sensitized and lyophilized erythrocytes is of value for early diagnosis of Newcastle disease. The authors described a method whereby these sensitized erythrocytes may be lysed and stored indefinitely without loss of their specific antigenic properties.

—W. G. SILLER.

HOFSTAD, M. S. (1954). The secondary immune response in chickens revaccinated with inactivated Newcastle disease virus vaccine.—*Amer. J. vet. Res.* **15**, 604-606. **3229**

A commercial alumina gel formol inactivated vaccine was used. The degree of immunity obtained depended on the interval between the two inoculations. The resistance to subsequent challenge with virulent virus of those birds re-vaccinated at 12, 16, and 20 weeks was 87.9, 94.7 and 94.4% respectively.

—D. LUKE.

YATES, V. J., FRY, D. E. & WASSERMAN, B. (1954). A preliminary report on an apparently new virus disease of chickens.—*Proc. 26th Ann. Meet. N.E. Conf. Lab. Wkrs. Pullorum Dis. Contr.*, Raleigh, N.C., June 14-15, 1954. pp. 4. [Mimeo graphed.] **3230**

After inoculation of a variety of unrelated materials into embryonated eggs, dwarfing and death of the embryo occurred. The lesions resembled but were considered different from those seen after inoculation of infectious bronchitis virus. The parent flock was healthy, but neutralizing antibodies were present in some birds. The virus is serologically distinct from those of Newcastle disease and infectious bronchitis, but is likely to be the same as that isolated from quail by Olson [V.B. **22**, 420].

—D. LUKE.

HOTCHIN, J. E. (1954). The purification and electron microscopical examination of the structure of staphylococcal bacteriophage K.—*J. gen. Microbiol.* **10**, 250-260. **3231**

See also absts. 3378 (antibiotics against viruses); 3475 (report, Australia); 3477 (report, Union of South Africa); 3478 (report, Hong Kong); 3479 (report, Gold Coast); 3480 (report, India); 3481 (report, Republic of Ireland); 3483 (report, U.S.A.).

Examination under the electron microscope of acetone-precipitated staphylococcal phage K purified by isobutanol and chloroform, revealed the existence of a "head" contained within a membrane which extended to cover a central "tail" rod, the "tail" ending in a "bob".

—A. SEAMAN.

KJEMS, E. (1955). Studies on streptococcal bacteriophages. I. Technique of isolating phage-producing strains.—*Acta path. microbiol. scand.* **36**, 433-440. [In English.] **3232**

K. described a technique for the isolation of streptococcal phages and discussed the action, range of activity and specificity of four different types of phages in relation to Group A haemolytic streptococci. He considers that the use of phages will make it possible to differentiate between strains of streptococci which are closely related serologically.—T. E. GATT RUTTER.

MICHELSSEN, E. (1954). Traek af virusarternes biologi. En oversigt. [Review of the biology of viruses.]—*Nord. VetMed.* **6**, 387-408. [In Danish.] **3233**

A review of published literature, with special attention to current progress in knowledge of the nature of viruses and of their labile character, which facilitates various modifications of pathogenicity and immunological properties. The review contains many quotations from F. M. Burnet's speculations on the origin and constitution of viruses. The importance of "survival" in the development of viruses as organisms is well evidenced. M. included current announcements made in Tübingen on the nature of influenza and Newcastle disease viruses.—I. MARTINI.

ABINANTI, F. R., WELSH, H. H., WINN, J. F. & LENNETTE, E. H. (1955). Q fever studies. XIX. Presence and epidemiologic significance of *Coxiella burnetii* in sheep wool.—*Amer. J. Hyg.* **61**, 362-370. **3234**

Clin. diagnosis of *Rickettsia burnetii* infection in 7 people was confirmed serologically. A serological survey revealed an incidence of 41.5% among 53 sheep shearers and of 4.2% among 1,465 inhabitants in the area. *R. burnetii* was recovered from two out of 30 wool tags and from one of 16 fleeces tested.

—T. E. GATT RUTTER.

IMMUNITY

SPALDING, D. H. & METCALF, T. G. (1954). The use of filter paper chromatograms to demonstrate antigen-antibody reactions.—*J. Bact.* **68**, 160-166. **3235**

Distilled water suspensions of dead bacteria were stained, washed and spotted on to filter paper strips which were immersed in saline for 15 min. after antiserum was added; the solvent rose to about 1.5 inches. Homologous antibody specifically fixed the stained antigen at its initial site; without specific antibody the stained antigen streaked up the strip with the solvent. Titrations were conducted by this technique; they were less sensitive than bacterial agglutination in tubes. Suspending the antigens in a saturated solution of glucose prevented early drying in the strip.

—G. FULTON ROBERTS.

HUMMEL, K. (1955). Die inkompletten Antikörper in der Immunbiologie. [Incomplete antibodies in immunology.]—*Zbl. Bakt. I. (Ref.)* **155**, 1-182. **3236**

A detailed review of the literature concerning incomplete antibodies, together with some original observations about their nature and probable mode of action.—W. G. SILLER.

ATKINS, E. & WOOD, W. B., Jr. (1955). Studies on the pathogenesis of fever. I. The presence of transferable pyrogen in the blood stream following the injection of typhoid vaccine.—*J. exp. Med.* **101**, 519-528. **3237**

The rate of clearance of intravenously injected pyrogen (typhoid vaccine) in rabbits is determined by previous exposure to the pyrogenic stimulus. In unsensitized animals the blood remains pyrogenic for normal recipients for 2 hours following injection, whereas in sensitized rabbits clearance takes place within 30 min., though after one hour a transferable pyrogen is again demonstrable in the serum. In rabbits rendered tolerant by repeated daily injections febrile response is depressed, and the blood is cleared within less than 5 min. and remains clear for 2 hours. Secondary pyrogen, some of which is derived from injured leucocytes, may play a critical role in the production of fever.—W. R. BETT.

MILES, A. A., DOWNIE, A. W. & MAEGRAITH, B. (1954). Discussion: the clinical aspects of immunity.—*Proc. R. Soc. Med.* **47**, 623-627. **3238**

Miles, considering vaccine production,

indicated certain bacterial antigens which were non-toxic but against which protective antibodies could be formed, and certain toxic antigens and auxiliary pathogenic factors (e.g., fibrinolysin) that evoke antibodies which are not protective.

Downie, considering smallpox and poliomyelitis as examples of virus infections, indicated that the initial viraemia determined the extent of the disease because antibody when produced could not enter the infected cells. Hence immunization, active before and passive at the time of contact, offered the best opportunity of protection.

Maegraith referred to some of the non-specific factors in immunity to protozoan infection, such as the value of a milk diet in malaria; and discussed the specific immunity against malaria.—G. FULTON ROBERTS.

RALBAG, E. D. (1954). [Allergic urticaria in horses.]—*Refuah vet.* **11**, 143. [In Hebrew. Abst. from English summary, p. 167.] **3239**

R. stated that allergic dermatitis of horses, similar to that described by Riek [V.B. **24**, 2801], commonly occurred in the plains of Israel during the summer months.—R.M.

FREUND, J., THOMPSON, G. E. & LIPTON, M.M. (1955). Aspermatogenesis, anaphylaxis, and cutaneous sensitization induced in the guinea pig by homologous testicular extract.—*J. exp. Med.* **101**, 591-603. [Authors' summary modified.] **3240**

G. pig testicles were extracted with acetic acid; the extract was purified by removing material in consecutive precipitations with 30% saturated ammonium sulphate, trichloracetic acid, and chloroform. The solution so purified, when administered with complete adjuvants, was highly active in inducing impairment of spermatogenesis in g. pigs. The activity resisted autoclaving at 15 lb. pressure for 20 min.; it was resistant to proteolytic enzymes and formamide.

BALAKRISHNAN, C. S. (1953). Equine haemolytic icterus neonatorum.—*Indian vet. J.* **30**, 83-86. **3241**

A preliminary report on studies on Thoroughbred horses in Poona (India), and of the finding of the blood factor—an Rh-like factor, which B. proposed to name "Y" factor after Yeravada, the name of the stud farm where the tests were made.—R. N. MOHAN.

ROTH, K. L. & FRUMIN, A. M. (1954). *In vitro differentiation between auto- and iso-immune antibodies by protamine and trypsin*.—*Science*, **120**, 945-948. **3242**

Cells sensitized with incomplete anti-D and cells from a case of acquired haemolytic

anaemia were agglutinated by 1% protamine sulphate solution; normal trypsinized cells were not. The effect could be abolished on the haemolytic anaemia cells, but not the anti-D sensitized cells by adding 2% bovine albumin or 1% trypsin to the protamine.

—G. FULTON ROBERTS.

See also absts. 3112-3122 (F.B.); 3132 (pasteurellosis); 3136 (H and O agglutinins); 3139 (S. dublin); 3142 (S. typhi-murium agglutination); 3148-3151 (brucellosis); 3153-3156 (bovine leptospirosis); 3183 (toxoplasmosis); 3185-3190 (F. & M. disease); 3192-3196 (rabies); 3200-3202 (influenza); 3209 (bovine papillomatosis); 3212 (African swine fever); 3219-3221 (distemper); 3229 (Newcastle disease); 3265 (immunity of rats to N. muris).

PARASITES IN RELATION TO DISEASE [GENERAL]

MIMIOGLU, M. (1954). Parasitologische Untersuchungen bei Katzen aus Ankara. [Parasites of cats in Ankara.]—*Z. Tropenmed. u. Parasit.* **5**, 305-307. [Abst. from English summary.] **3243**

Of 150 cats examined in Ankara, 10 were free from parasites. The remainder harboured 13 different species of ecto- and endoparasites. Tapeworm infestation was the heaviest (80%), the species present, in order of frequency, being, *Joyeuxiella pascalei*, *Dipylidium caninum*, *Taenia taeniaeformis*, *Diplopystidium nölleri* and *T. pisiformis*. The trematode *Opisthorchis felineus*, the cestode *D. nölleri* and the nematode *Capillaria aerophila* were recorded for the first time in Turkey.—F.E.W.

HAYES, F. A. (1954). Parasitism in the chinchilla. *Auburn Vet.* **10**, 169-172 & 190. **3244**

A general discussion on the known parasites of the chinchilla, emphasizing that toxoplasmosis could become of grave concern to breeders in the U.S.A.—D. POYNTER.

AUDY, J. R. (1954). A biological approach to medical geography.—*Brit. med. J.* April 24th, 960-962. [Author's summary modified.] **3245**

The whole assemblage of diseases from which a community suffers forms a pattern which can profitably be viewed as a whole. Those diseases caused by organisms form part of a general parasite-pattern. The author referred to examples of such patterns drawn from earlier studies of rodents in Malaya; he considered the parasite-patterns to be decided

largely by environment—i.e., by the geographical background (which may be taken on a very small scale).

He approached the distribution of diseases in different communities in different places by a holistic study of the relationship borne by the entire disease-patterns of the communities to the social patterns and the geographical background. As a simple example, he suggested that the disease-pattern in Somaliland is more or less evoked by the geography of the country. He drew further illustrations from malaria in Ceylon and from the typhus fevers.

In the earliest stages of man's occupation the link between geography and the disease-pattern appears to be very close. Man soon alters his environment, but the disease-patterns, while changing also, are still related broadly to the environment, and the change is largely one of emphasis. Urbanization, however, evokes urban patterns of disease, which tend to be widely distributed and uniform in nature, largely by interchange between urban environments, which are essentially the same everywhere. Industrialization evokes new elements, which again may become closely linked to the geographical background.

The methods and aims of medical geography, or medical ecology, are of interest even to those concerned with preventive medicine in the most urbanized or stereotyped environments. The author added a particular biological approach to those which are already familiar.

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

MURRAY, M. D. (1955). Infestation of sheep with the face louse (*Linognathus ovillus*).—*Aust. vet. J.* **31**, 23-26. [Author's summary modified.] **3246**

M. described an infestation of sheep with *L. ovillus*. The louse population increased during the winter months to reach a maximum

in the spring and decreased rapidly to a minimum in the early summer. When the population was at a minimum, lice could be found only on the hair-covered areas of the face and the lower jaw and in the wool immediately surrounding these areas. From these sites the infestations spread over the body: (1) slowly down the ventral

aspect of the neck, increasing greatly in density in the process, and (2) by being brushed off the face on to the body.

He recorded observations on the habits of the louse on the host.

A dipping trial showed that control could be obtained with benzene hexachloride at a conc. of approx. 0.005% γ -isomer, provided an efficient dipping technique was employed.

FAIRCHILD, H. E. & DAHM, P. A. (1955).

Lice control on chickens with chlorinated hydrocarbon insecticides.—*J. econ. Ent.* **48**, 141-146.

3247

Natural infestations with *Eomenacanthus stramineus*, *Goniocotes gallinae*, and *Menopon gallinae*, were completely controlled by a single dusting of the birds with either 5% chlordane, 1.5% "aldrin," 1.5% "heptachlor," or 1% "lindane," but not with 1% "dieldrin." The application of the "chlordane," "aldrin," or "lindane" on to the litter also gave effective louse control. The results were assessed by visual examination of the birds. The fat of birds dusted with "lindane" or with "dieldrin" was examined by a bioassay method. Small residues of the latter, but not of the former, were detected 12 weeks after the dusting.

—D. W. JOLLY.

BAKER, W. C. & SCHOOF, H. F. (1955). Prevention and control of fly breeding in animal carcasses.—*J. econ. Ent.* **48**, 181-183.

3248

A complete kill of blowfly was obtained with 26-30 days' protection against re-infestation when emulsions containing 0.25-0.5% "dieldrin" or "endrin," or of "diazinon" were sprayed over dog carcasses. Similar concentrations of "aldrin," of "chlordane" or benzene hexachloride or of "malathion," were less effective.—D. W. JOLLY.

JOHNSTONE, I. L. & SOUTHCOTT, W. H. (1954). Dibutyl phthalate used in a lamb-marking dressing.—*Aust. vet. J.* **30**, 139-141.

3249

Ceylon oil of citronella and dibutyl phthalate were compared as repellents against blowflies in lamb-marking dressings. Citronella was highly efficient, but dibutyl phthalate only when applied freely. Both dressings assisted in healing the docking wound and the boric acid content in both dressings prevented the strike from spreading.—M. D. MURRAY.

GEBAUER, O. (1953/54). Zur Biologie der Rinder-Dasselfliegen. Das Verhalten der Larven des ersten Stadiums und Bekämpfungsmöglichkeiten. [Biology of the warble fly.

The behaviour of first-stage larvae with reference to possible methods of control.]—*Wiss. Z. Humboldt-Univ., Berlin.* **3**, 79-83.

3250

First-stage larvae of *Hypoderma bovis* are most susceptible to environmental changes, especially to changes in osmotic tension, just after they have made a breathing opening in the skin of the host, but before completing their rotation within the skin and before a typical "warble" has developed. They may be killed at this stage by removing with a stiff brush the serum crusts over each breathing hole, followed by the application to the skin of 10% saline.

—E. J. L. SOULSBY.

SMITH, C. I. & RICHARDS, R. (1954). New insecticides for control of the cattle grub.—*J. econ. Ent.* **47**, 712-713.

3251

The mortality of larvae of *Hypoderma lineatum* caused by the application of the organic phosphorus compounds, "L. 13/50," "L. 21/199" and "diazinon" at concentrations of 0.5-1.0% was comparable to that observed with derris. Two other organo-phosphorus compounds, "malathion" and "EPN" [O-(3-chloro-4-methylumbellifero)-O,O-dimethylthiophosphate] and dieldrin (a chlorinated naphthalene derivative), at 1.0%, 0.1% and 0.5% respectively, were ineffective. Two pints of each insecticidal preparation were applied, with a brush, to the backs of infested cattle.—D. W. JOLLY.

DEFOLIART, G. R. (1954). Horn fly control with chlorinated insecticides.—*J. econ. Ent.* **47**, 266-268.

3252

D.D.T., 0.5% and 1% and "CS-708" ["dilan," a mixture of one part prolane + 2 parts bulan], 0.5%, applied at the rate of 2 quarts per animal, were the most effective of various insecticides tested for the control of *Siphona (Lyperosia) irritans*.

Each gave about 4 weeks' protection and such protection was not prolonged by the addition of benzene hexachloride nor of fused bentonite sulphur to the D.D.T. There had been no evidence of insecticidal resistance after 7 years' application.—JAS. G. O'SULLIVAN.

ROUBAUD, E. (1954). Expériences d'intercroisement de glossines (tsé-tsés) du groupe *Gl. palpalis*, effectuées à l'Institut Pasteur de Paris. [Interspecific crosses with tsetse flies.]—*Ann. Inst. Pasteur.* **86**, 537-560.

3253

Hybridization between species of *Glossina* was investigated and although successful matings were achieved it was not possible to rear a second generation. R. discussed the reasons

for the incompatibility of the species and suggested the possible use of such matings in tsetse control.—JAS. G. O'SULLIVAN.

MACKERRAS, I. M. (1954). The classification and distribution of Tabanidae (Diptera). I. General review.—*Aust. J. Zool.* **2**, 431-454. **3254**

M. proposed a replacement of the old classification of the Tabanidae with one based primarily on the genital organs of both sexes supported by significant, though not complete, correlation with external characters. He discussed the distribution of the family in detail with comments on its probable evolutionary history.—M. D. MURRAY.

PFADT, R. E. & RYFF, J. F. (1955). Safe use of dieldrin dust for sheep ked control.—*J. econ. Ent.* **48**, 195-199. **3255**

Ewes and lambs were treated twice, at an interval of 20 days, with a 1% "dieldrin" dust, and received 17-57 mg. per kg. body wt. of the compound. In animals slaughtered 9 days after the final dusting a max. of 0.5 p.p.m. "dieldrin" was present in the renal and omental fat. However none was detected in the tissues of animals slaughtered 87 days after the dusting, although traces of the insecticide were still present in the fleece. There was no evidence of toxicity or significant pathological changes in the liver and kidneys of the treated animals.—D. W. JOLLY.

PARDI, M. C. & ROCHA, U. F. (1953/54). Lesões causadas na pele de porcos pelas picadas de *Ornithodoros rostratus* Aragão 1911 (Acari, Argasidae). Importância econômica. [Lesions in the skin of pigs caused by the bites of *O. rostratus*.]—*Rev. Fac. Med. vet., S. Paulo.* **5**, 35-39. [English summary.] **3256**

The authors described *Ornithodoros rostratus* infestation in pigs causing skin lesions which, at meat inspection, gave rise to suspicion of swine fever. "Esso A" [chemical composition not given] in 1% watery solution was considered a good parasiticide.

—T. E. GATT RUTTER.

NEITZ, W. O. (1954). *Hyalomma transiens Schulze*: a vector of sweating sickness.—*J. S. Afr. vet. med. Ass.* **25**, 19-20. **3257**

Sweating sickness of calves has been known in many parts of Africa for some years [Clark, *V.B.* **4**, p. 262] but the causation is unknown. The disease is characterized by salivation, lachrymation, very marked reddening of the visible mucous membranes, profuse moist

eczema and inappetence. Attempts at experimental transmission of the disease by injection of blood and tissue emulsions from sick calves have all failed.

N. now reports successful transmission of the disease using the tick *H. transiens* as the vector, the larval and nymphal stages of which do not feed on cattle.

An engorged female of *H. transiens* was taken from a calf with sweating sickness. The larvae hatched from the eggs laid by this tick were fed on a rabbit through the nymphal to the adult stage. Twenty of the adults were fed on a three-month-old calf which, after nine days, developed typical symptoms of sweating sickness and died three days later.

Larvae and nymphae from adult ticks which had fed on the experimental calf were again reared on rabbits and the ensuing adults were allowed to feed on three calves. All three calves developed thermal reactions on the 4th and 5th days. One of these was slaughtered, one recovered and one died.

It is concluded that *H. transiens* is a vector of sweating sickness and that the infectious agent is transmitted hereditarily in the tick.

It is thought that maintenance of the infectious agent in ticks will greatly facilitate study of this disease.

COMUZIO, M. (1954). Ricerche sulla diffusione e sullo sradicamento dell'acariasi dagli allevamenti bovini. [Distribution and eradication of sarcoptic, psoroptic and chorioptic mange in cattle.]—*Progr. vet., Torino.* **9**, 596-600, 602-604 & 606-607. **3258**

A survey of mange among cattle in the Provinces of Milan and Pavia revealed a high incidence with an estimated economic loss of 15,000-18,500 lire per beast annually. Benzene hexachloride spray (1 : 300) was considered effective.—T. E. GATT RUTTER.

ROCHA, U. F. & PARDI, M. C. (1953/54). Sarna em bovinos do estado de São Paulo, causada por *Demodex bovis* (Stiles, 1892), Acari, Demodicidae. [Demodectic mange in cattle in Brazil.]—*Rev. Fac. Med. vet., S. Paulo.* **5**, 27-34. [English summary.] **3259**

An account of demodectic mange affecting 25 cattle on 5 different farms. Diagnosis of the condition, the morphological characters of the mite, and the lesions were discussed. The damage caused to the hides was also described.

—T. E. GATT RUTTER.

FIEDLER, O. G. H. & DU TOIT, R. (1954). Australian itch. A note on its occurrence

in South Africa.—*J. S. Afr. vet. med. Ass.* **25**, No. 2, pp. 21-22. **3260**

Histological examination at Onderstepoort of skin biopsy material from Merino sheep affected with "Australian itch" revealed a distinct dermatitis with hyperkeratosis, malformations of the wool fibres, and the presence of minute acari of the genus *Psorergates*. The infection spreads slowly through a flock.

—W. R. BETT.

ROBERTS, F. H. S. (1953). Insects affecting livestock. With special reference to important species occurring in Australia.—pp. vi \times 267. Sydney (& London) : Angus & Robertson, Ltd. 45s. **3261**

This book is confined solely to veterinary entomology and is the best of its kind. It deals with the whole range of the insects, ticks and mites which affect livestock and though based primarily on those conditions encountered in Australia, material has been included from several other countries, thus making it sufficiently comprehensive to be used as a standard textbook.

It approaches the subject by laying the emphasis on the insect and its life cycle. Sufficient of the morphology is included for

PARASITES IN RELATION TO DISEASE [HELMINTHS]

BOCH, J. (1954). Untersuchungen über den Wurmbefall von Schafherden auf Hochalmen. [Investigation into worm infestation of sheep on high pastures.]—*Mh. Tierheilk.* **6**, 248-255. **3262**

Examination of faeces from sheep in 5 flocks pastured at 1,100 to 1,900 m. above sea level revealed, in 50 counts, that 82-96% of the sheep in each flock had some degree of infestation with stomach and intestinal worms, lungworms or tapeworms. All the worms appear to have been recorded from wild deer and goats with the exception of *Strongyloides*. Anthelmintic treatment of sheep before turning out to high pastures in the summer is recommended to avoid further contamination of the pastures.—M. L. CLARKE.

SENEVIRATNE, P. & PERUMAL PILLAI, C. (1954). *Stephanurus dentatus* (kidney worm) infections in swine in Ceylon.—*Ceylon vet. J.* **2**, 52-55. **3263**

S. dentatus infestation in Ceylon was diagnosed on P.M. and by urine examination. Therapeutically, diethylcarbamazine acid citrate produced clinical improvement in severely infested animals.—E. J. L. SOULSBY.

recognition, and small keys to distinguish closely related species facilitate identification even for non-specialists. The diseases caused, or the conditions for which they act as vectors, are fully listed but briefly described. The result is a book that is pleasant to read and that gives a well balanced description of the agent and its control.

As would be expected fly strike and its control in sheep, and tick control in cattle are very competently described; but the book would have been enhanced in value if more attention had been paid to tick control in sheep. Sarcoptic and notoedric mange of rabbits has been omitted and no warning is given that B.H.C. (benzene hexachloride) in emulsion form may be toxic to dogs severely affected with sarcoptic or demodectic mange. *Bdellonyssus* on page 160 is mis-spelt.

There is no unnecessary inclusion of technical data, the principles of classification and collection of material are dealt with at the beginning, leaving the major part of the book a practical guide to field conditions, so that it is of value not only to veterinary surgeons but to all those people associated with large numbers of livestock. There is a classified bibliography and an index at the end of the book.

—W. E. PARISH.

TROMBA, F. G. (1955). The role of the earthworm, *Eisenia foetida*, in the transmission of *Stephanurus dentatus*.—*J. Parasit.* **41**, 157-161. [Author's summary modified.] **3264**

Eisenia foetida may be experimentally infected by exposure to third stage larvae of *Stephanurus dentatus*. Larvae are found at first in the alimentary tract of the earthworm and after 4 days in the "brown bodies."

Healthy pigs that were fed these earthworms developed typical liver lesions of *Stephanurus* infestation.

WEINSTEIN, P. P. (1955). The effect of cortisone on the immune response of the white rat to *Nippostrongylus muris*.—*Amer. J. trop. Med. Hyg.* **4**, 61-74. **3265**

Cortisone inhibited to an appreciable degree the immune response of white rats to *N. muris*. In immunized rats it reduced the over-all immune reaction. In the sera of immunized groups (treated and untreated) the larvae formed a precipitate at the excretory pore—indicating the presence of antibody.

—T. E. GATT RUTTER.

MICHEL, J. F. & ROSE, J. H. (1954). Some observations on the free living stages of the cattle lungworm in relation to their natural environment.—*J. comp. Path.* **64**, 195-205. [Authors' summary modified.] **3266**

The period of survival of larvae of *Dictyocaulus* in pads of cattle faeces on pasture and on the surrounding herbage varied from season to season, though the initial mortality was heavy throughout the year. In May the larvae survived for only 4 weeks, but they persisted for 13 weeks from October to January. The majority of the surviving larvae remained in the faeces and did not migrate on to the herbage.

When infested faeces were placed on rapidly growing grasses in boxes survival in autumn was longer than in early summer. The largest number of infective larvae is recoverable from the herbage when the faeces have been thinly spread upon it. When the herbage is long the initial survival in these thin films of faeces is favoured, especially in autumn.

The longevity of larvae in undisturbed faeces is influenced to only a limited degree by the character of the surrounding herbage. On the other hand the longevity of the small numbers of larvae which have migrated out of the faeces is markedly greater in long than in short herbage. The authors concluded that for larvae to get on to the herbage in significant numbers it is necessary for the faeces themselves to get on to the herbage. They discussed the relevance of these findings to the process of infestation and the epidemiology of husk.

MACKERRAS, M. J. & SANDARS, D. F. (1955). The life history of the rat lung-worm, *Angiostrongylus cantonensis* (Chen) (Nematoda: Metastromyidae).—*Aust. J. Zool.* **3**, 1-21. **3267**

An. cantonensis from the pulmonary arteries of the rat is briefly re-described. Larvae of the first stage migrate from the lung substance into the respiratory tract, are swallowed, and appear in the faeces.

Attempts at direct transmission failed. Of several invertebrates, only the garden slug was shown to act as an intermediate host, the most suitable species being *Agriolimax laevis*. In this host the first and second moults took place.

On ingestion by a rat, larvae penetrate the wall of the lower ileum, are blood-borne at least 24 hours, and eventually enter the brain where the third and fourth moults take place. Young adults emerge on the surface of the brain between 12 and 14 days after

infection. After 14 days in the subarachnoid space larvae migrate to the pulmonary arteries via the venous system. The prepatent period is 42 to 45 days.

The authors believe that it is hardly likely that *An. cantonensis* is unique in having a phase in the nervous tissue. However, in a normal host this period is a silent one, but may cause symptoms in an abnormal host. It is suggested that a phenomenon of this kind might explain some obscure cerebral pathology in man.—R. I. SOMMERSVILLE.

PARNELL, I. W., RAYSKI, C., DUNN, A. M. & MACKINTOSH, G. M. (1954). Some observations on the worm egg counts of Scottish hill lambs.—*J. Helminth.* **28**, 205-219. [Authors' summary modified.] **3268**

Worm egg counts revealed that after the end of June infestations of pathogenic significance occur in a considerable percentage of Scottish hill lambs, except on the west coast where heavy infestations do not occur until August, when the egg counts in other areas are rising again after falling for a few weeks in July. Identification of larvae from faeces cultures confirmed that species of *Ostertagia* are the first cause of high worm egg counts followed in August by species of *Trichostrongylus* then by *Haemonchus contortus* and *Chabertia ovina* and finally by *Bunostomum trigonocephalum*. Species of *Nematodirus* may be sufficiently numerous in a few districts to be of pathogenic importance in June and July.

NEWBERNE, J. W. & BAILEY, W. S. (1954). A preliminary study on the effectiveness of hexylresorcinol suspension as an enema in removing hookworms, and whipworms from dogs.—*Vet. Med.* **49**, 117-119 & 122. **3269**

Suspensions of 0.2-2.0% hexylresorcinol were given as enemas to 70 dogs, the volume of the suspension being adjusted to 15 ml. per lb. body wt. The results from an autopsy of 55 of the dogs indicated that good anthelmintic effect (no more than 5 worms remaining), was observed in the following percentages of cases: hookworms 60%, roundworms 88%, and whipworms 40%.—D. W. JOLLY.

FAIRBAIRN, D. (1954). The metabolism of *Heterakis gallinae*. II. Carbon dioxide fixation.—*Exp. Parasit.* **3**, 52-63. **3270**

H. gallinae, isolated from naturally infested fowls and exposed to radio-active carbon in a bicarbonate buffered medium, fixed carbon dioxide mostly in the carboxyl group of the excreted propionic acid. There was a close

similarity between the *Heterakis* fermentation and the already known *Propionibacterium* fermentation.—M. L. CLARKE.

BURCH, G. R. & BLAIR, H. E. (1955). A new ascaricide for swine.—*J. Amer. vet. med. Ass.* **126**, 304-308. **3271**

"Aska-rid" (an anthelmintic powder containing 1.5% cadmium oxide) given mixed in the proportion of 1 lb. per 100 lb. of ground feed over a period of 72 hours was found to be a palatable, safe and effective ascaricide for pigs.—T. E. GATT RUTTER.

FRENZEN, K. (1954). Biologische Untersuchungen an *Ascaridia galli* Schrank 1788. [Biology of *A. galli*.]—*Z. Parasitenk.* **16**, 214-240. **3272**

F. tested the effects of dry and moist heat and chemicals (alcohol) upon unsegmented and embryonated eggs of *A. galli*. All eggs were killed by water at 80°C. Several large fertile double eggs were found in one female. Addition of bile to eggs already exposed to pepsin and trypsin resulted in rapid hatching of larvae. F. recorded a further case of an adult *A. galli* occurring in a hen's egg.—M. L. CLARKE.

PANEBIANCO, F. (1955). Sulla tetrameriosi del pollo. [Tetramerous infestation of fowls in Sicily.]—*Progr. vet., Torino.* **10**, 63-66 & 68-71. **3273**

P. gave an account of *T. fissispina* infestation in Messina, Sicily, and described the male and female of the parasite. The proventriculus was mainly affected, the lesions consisting of ectasia and atrophy of the glandular acini invaded by mature females.

—T. E. GATT RUTTER.

OHBAYASHI, M. (1953). [The parasitic changes in the bladder caused by *Setaria*.]—*Jap. J.*

See also absts. 3203 (endoparasites of cats); 3474 (report, Canada); 3475 (report, Australia); 3476 (report, New Zealand).

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

PLOWRIGHT, W. (1955). Malignant neoplasia of the oesophagus and rumen of cattle in Kenya.—*J. comp. Path.* **65**, 108-114. [Author's summary copied verbatim.] **3278**

In a small locality of the Masai reserve of Kenya five cases of a distinctive chronic disease were brought for examination within a time interval of five weeks. Three of these were examined post-mortem. All three were confirmed as cases of rumenal, or oesophageal and

vet. Sci. **15**, 103-106. [In Japanese.] [English summary, pp. 107-108.] **3274**

A report on the finding of *Setaria* worms in the wall of the urinary bladder in a 4-year-old stallion and in a 7-year-old cow respectively, with an account of the histological findings, together with reproductions of 3 photomicrographs. In the former case a mature female identified as *S. equina* lay beneath the mucosa on the submucous tissues and had caused no lesions. In the latter the worms were immature and there were severe lesions including considerable eosinophile leucocytic infiltration, haemorrhages, oedema and some regressive changes.—KOGI SAITO.

ROBINSON, E. J., Jr. (1955). A description of attempts to infect mosquitoes with avian filarial worms.—*J. Parasit.* **41**, 176-178. [Author's summary slightly modified.] **3275**

One thousand mosquitoes of 13 species and strains were exposed to microfilariae of the genus *Dipetalonema* of birds, mostly crows and jays. With a minor exception, no development followed. R. concluded that none of these species which were adequately tested could serve as a good intermediate host for these worms.

ROBERTS, H. E. (1955). Leech infestation of the eye in geese.—*Vet. Rec.* **67**, 203-204. [Author's summary modified.] **3276**

An outbreak of severe kerato-conjunctivitis in geese in Great Britain was found to be due to a heavy infestation with leeches, *Theromyzon tessulatum*.

WETZEL, R. (1954). Biologische Grundlagen der neuzeitlichen Wurmbekämpfung. [Modern methods in the control of helminth infestation.]—*Mh. VetMed.* **9**, 506-511. **3277**

A discussion of the effects of anthelmintic treatment in animals at different stages of immunity to helminths.—W. G. SILLER.

rumenal, carcinoma of multicentric origin. Figures reported by the herd owners indicate that annual mortality due to this condition may reach ten per cent. Clinical and pathological features of the disease are described. Preliminary observations have failed to indicate the carcinogenetic factor or factors involved.

FERRI, A. G. & TAUSK, E. (1955). Primary pulmonary carcinomas of the dog.—*J. comp.*

Path. 65, 159-167. [Authors' summary copied verbatim.] **3279**

Five primary lung tumours of dogs are reported, their gross and microscopic descriptions being given. The first case is of a bronchial columnar-cell carcinoma showing undifferentiated areas resembling spindle-cell and round-cell sarcomas. There are three cases of epidermoid bronchial carcinomas. In one of these, evidence was found that the squamous metaplastic change had occurred in the tumour tissue itself. The fifth case is classified as a histiocytoma from its morphology as well as from the presence of reticulin between the cells. It probably originated from the alveolar cells.

WANDOKANTY, F., UTZIG, J. & KOTZ, J. (1955).

Wpływ zagwi brzozowej i guza brzozowego na nowotwory samorzutne psa z uwzględnieniem raka sutka u psów. [Effect of hydrolysates of the higher fungi *Polyporus betulinus* and *Poria obliqua* on spontaneous tumours in dogs.]—*Méd vét., Varsovie*, 11, 148-151. **3280**

Hydrolysates of the fungi studied appear to have a selective action on the cells of mammary carcinoma in bitches. The authors described an experiment in which oral administration of these hydrolysates to two bitches affected with mammary carcinoma resulted in marked retrogressive changes in the neoplastic tissue. Histological findings were identical in both cases and characterized by colliquative necrosis of the neoplastic cells, increase in the amounts of connective tissue and the appearance of myoepithelial cells in place of the neoplastic ones.—M. GITTER.

ATANASIU, P., VALLEE, A. & MARTINET, J. (1955).

Diagnostic de la leucose lymphoïde chez le porc. [Diagnosis of lymphoid leucosis in the pig.]—*Rec. Méd. vét.* 131, 246-250. **3281**

An account of the P.M. findings in a Large White pig with lymphoid leucosis. Before death the animal had paralysis of the hind limbs, partial paralysis of the fore limbs, and exophthalmia of one eye.—A.S.

STERN, P. & SPRUNG, L. (1953). Ispitivanje antileukemickih supstanca na leukozi kokosi.

II. Saopcenje. [Anti-leucaemic substances in fowl leucosis.] Part II.—*Veterinaria, Sarajevo*, 2, 269-271. [In Croat. English summary.] **3282**

The authors confirmed that the administration of 1-(m tolyl) semicarbazide gives rise in fowls to a marked increase in the number of leucocytes, up to 500,000 per cu. mm. This action is due to the semicarbazide group,

because 3-semicarbazidobenzamide elicits the same response.

In these leucaemic fowls it is possible to cause a considerable fall in the number of leucocytes by means of the oral administration of two antileucaemic drugs: 1-4 dimethanesulphonyl-oxybutane and triethylmelamine.

—I. MARTINI.

CAMPBELL, J. G. (1954). Observations on the "eclipse phase" in a virus-associated erythroleukaemia of the chicken.—*Brit. J. Cancer*, 8, 737-742. **3283**

Blood from a case of acute virus erythro-leucaemia was injected i/v into susceptible chickens. Infectivity lasted for about 30 min. The virus then disappeared for 18 hours (eclipse phase) during which it was not demonstrable by sub-inoculation of blood, plasma, marrow, liver or spleen. Virus activity returned after this period and lasted until the bird's death from leucaemia 10-18 days after injection. C. considered that the "eclipse phase" represented a form of life-cycle in which, after penetration of haemopoietic cells, the virus broke down into pro-viral forms which multiplied by replication. The pro-virus was then re-formed as a complete or infective virus and the blood and tissues remained infective thereafter. He also observed that most spontaneous leucaemias were not transmissible by whole blood or tissue inocula and injected birds did not elaborate any immunity against virus leucaemia. It seemed possible that field cases were associated with pro-virus in an indefinite state of eclipse. This would constitute a point of difference from Rous sarcoma which can be propagated in the virus-eclipse phase by transplantation.—T. E. GATT RUTTER.

ECKERT, E. A., SHARP, D. G., BEARD, D.,

GREEN, I. & BEARD, J. W. (1955). Neutralization and precipitation of the virus of avian erythromyeloblastosis with serum of hyper-immunized chickens.—*Proc. Soc. exp. Biol., N.Y.* 88, 181-187. [Authors' summary slightly modified.] **3284**

Three-month-old chickens were hyper-immunized with formolized concentrates of the virus of avian erythromyeloblastic leucosis together with the untreated plasma of diseased birds containing the agent in high concentration. The resulting immune sera strongly neutralized the infectious properties of the virus and precipitated the characteristic virus particles as observed macroscopically and corroborated by electron micrographs of the precipitates. Precipitation of the virus particles was associated

with proportional precipitation of the enzyme activity of the virus to dephosphorylate adenosine triphosphate. The findings constitute the critical specific criterion needed to establish

See also absts. 3378 (antibiotics against tumours); 3488 (hook, blood chemistry and tumours).

NUTRITIONAL AND METABOLIC DISORDERS

LARSSON, S. (1954). On the hypothalamic organisation of the nervous mechanism regulating food intake. I. Hyperphagia from stimulation of the hypothalamus and medulla in sheep and goats. II. Studies of isotope distribution and chemical composition in the hypothalamic region of hungry and fed rats.—*Acta physiol. scand.* **32**, Suppl. 115, pp. 63. **3285**

The technique described by Hess for electrical stimulation of unanaesthetized animals was used. The skulls were previously X-rayed to determine where to insert electrodes. Eight sheep/goats were stimulated by triple needle electrode, licking and chewing movements being produced in every case. The brain parts involved appeared to be in the hypothalamus laterally backwards from just behind the optic chiasma; in the medulla, in the region of the dorsal motor nucleus of the vagus. Sixteen goats were then stimulated by the injection of small amounts of hypertonic solutions of, in the main, common salt or sugar. Localization of injection points in the brain sections was by injection of 1% osmic acid at one level, instead of by inducing coagulation as in the first series. All 16 animals exhibited hyperphagia from stimulation of the effective tract of the brain. There was no specificity of injection solution and no significant variation of blood sugar. Tissue samples from the comparable "feeding centres" of brains of hungry rats absorbed significantly more ^{32}P than in fed rats, whereas 2 adjacent brain areas absorbed less, the total for all three areas being thus unchanged, whether rats were hungry or fed. The concentration of adenosine triphosphate and creatine phosphate was also markedly higher in the "feeding centres" of the hungry rats as compared with adjacent areas.

—F. L. M. DAWSON.

BIGGERS, J. D. & CURNOW, D. H. (1954). Oestrogenic activity of subterranean clover. I. The oestrogenic activity of genistein.—*Biochem. J.* **58**, 278-282. **3286**

CURNOW, D. H. (1954). Oestrogenic activity of subterranean clover. II. The isolation of genistein from subterranean clover and methods of quantitative estimation.—*Ibid.* 283-287. **3287**

the particles as the virus and the enzyme as a component inseparable, by all methods yet tried, from these virus particles.

See also absts. 3378 (antibiotics against tumours); 3488 (hook, blood chemistry and tumours).

NUTRITIONAL AND METABOLIC DISORDERS

I. & II.—Although the oestrogenic potency of genistein is very low, sufficient is present in fresh subterranean clover to account for the oestrogenic activity of the plant. Genistein is therefore probably responsible for the infertility of sheep grazing on subterranean clover pastures. Earlier estimations of intake based on the chloroplast fraction, which retains only 30% of the total activity, have been most misleading.—P. H. HERBERT.

ZADURA, J. (1955). Obserwacje nad szkodliwym działaniem zamokrzycy ryzowej (*Oryza clandestina* A. BR = *Leersia oryzoides* (L) SW) u świń. [Harmful effect of the grass *Oryza clandestina* on pigs.]—*Méd vét., Varsovie.* **11**, 165-166. **3288**

O. clandestina is a tall grass which grows in marshy land and ditches. The leaves have sharp serrated edges. Several pigs, 3½-6 months old, died following the introduction of fresh hay bedding containing this species. P.M. examination revealed haemorrhagic gastro-enteritis and the presence of undigested leaves with serrated edges in the stomachs and small intestines. After the bedding had been changed there were no more casualties. Z. suggested that the sharp serrated edges of the leaves cause mechanical damage to the mucous membrane and enable absorption of toxic substances to which the intact mucosa is not permeable.

—M. GITTER.

AUSTVOLL, J. (1954). Plumstones in pig swill. [Correspondence.]—*Vet. Rec.* **66**, 681. **3289**

The author reported two cases in which bacon pigs were condemned at meat inspection because of an almond taint in the carcasses. This was shown to be due to feeding an abnormal amount of plums, as when the pigs crush the stones, benzaldehyde and hydrocyanic acid will be absorbed into the tissues and so cause an almond taint in the meat.—J. A. NICHOLSON.

BALDRIDGE, R. C. (1955). Blood ergothioneine and dietary oats.—*J. Nutr.* **56**, 107-113. **3290**

Ergothioneine appeared in the r.b.c. of the rabbit and white rat fed on oats, but not in the blood of rats on purified (casein) diets, alone or with cabbage. The blood ergothioneine

level in the white rat was not affected by vitamin B₁₂ and histological examination and relative weight of rat thyroid tissue indicated that elevated blood levels of ergothioneine were not related to thyroid function.

—T. E. GATT RUTTER.

STOKSTAD, E. L. R. (1954). Antibiotics in animal nutrition.—*Physiol. Rev.* **34**, 25-51. **3291**

A useful review of the stimulating effect of antibiotics on the growth of fowls, turkeys, pigs, ruminants, dogs, and laboratory animals. S. also discussed the growth-stimulating action of arsenical compounds and surface-active agents, the vitamin-sparing and protein-sparing action of antibiotics, their effect on mineral metabolism and the intestinal flora, and their role in diseases of the liver, kidneys and endocrine system.—R.M.

SLINGER, S. J., MORPHET, A. M., HUNT, E. C. & PEPPER, W. F. (1954). Effect of penicillin and forage juice on reproduction and growth of turkeys.—*Poult. Sci.* **33**, 944-951. **3292**

Hatchability of turkey eggs was slightly, but not significantly, increased by supplementing the breeder diet with forage juice (extracted from forage crops by pressure) or penicillin alone, or penicillin plus forage juice. Egg production remained unchanged, and feed consumption was slightly decreased by penicillin. Forage juice fed to the hens had no effect on the growth of poult, while penicillin accelerated growth, but only if the poult were also fed penicillin plus forage juice. The combined supplements in the poult diet proved better than either supplement alone, but only where the hens had also received penicillin.

—G. P. MARSHALL.

CLARK, H. E., HARRISON, D. L., SOULE, R. P., Jr. & RICHARDSON, D. (1955). The nutritive value of proteins of muscle from hogs fed diets supplemented with aureomycin or terramycin hydrochloride.—*J. Nutr.* **56**, 61-66. [Authors' summary slightly modified.] **3293**

The nutritive value of proteins of pork was studied when pigs were fed (1) a basal ration adequate for growth; (2) the basal ration supplemented with aureomycin hydrochloride; or (3) the basal ration supplemented with terramycin hydrochloride. Growth and nitrogen balance of newly weaned rats that were offered 1.6% of nitrogen served as criteria. Inclusion of 10 mg. of aureomycin or terramycin per lb. of ration fed to pigs did not stimulate the growth of rats, but nitrogen balance, expressed in

terms of surface area, was significantly higher ($P < 0.05$) when pork representing the basal ration was fed than when meat from pigs receiving either of the antibiotics was offered. The nutritive value of pork proteins was similar to that of beef proteins for the growing rat.

MENGE, H. & CONNER, M. H. (1955). Effect of chlortetracycline on chick thyroid size.—*Proc. Soc. exp. Biol., N.Y.* **88**, 216-218. [Authors' summary modified.] **3294**

P.M. examination of chicks that had been fed chlortetracycline (aureomycin) at levels of 10, 50, 500 and 1,000 mg./kg. of diet from one day of age for 4 weeks, revealed an increase in the size of the thyroid gland over that of controls; the increase was statistically significant. Examination of the data indicated that antibiotic dosage up to 100 mg./kg. of diet was correlated with increase in thyroid size. Increasing the antibiotic dosage above this level did not increase the thyroid size at the same rate. Since the growth of the chicks was not depressed and the thyroid was not enlarged as much as it was when thiouracil was fed, it appears that chlortetracycline did not duplicate the action of thiouracil.

GARNER, G. B., MUHRER, M. E., ELLIS, W. C. & PFANDER, W. H. (1954). Antibiotic-like substance and cellulose digestion stimulator found in fermented feeds and in rumen fluid.—*Science* **120**, 435-436. **3295**

Active extracts from bovine and ovine ingesta and fermented feeds were found, *in vitro*, to shorten the lag phase of washed rumen micro-organisms, thus stimulating cellulose digestion. When tested by the standard plate method, they also inhibited the growth of such contaminants as *Micrococcus flavus* and possibly also *Pseudomonas pyocyannea* and *Bacterium aerogenes*.—G. P. MARSHALL.

BRAUDE, R., CAMPBELL, R. C., LUCAS, I. A. M., LUSCOMBE, J. R., ROBINSON, K. L. & TAYLOR, J. H. (1955). Antibiotics and endocrine stimulants as promoters of growth in fattening pigs.—*Brit. J. Nutr.* **9**, 191-196. **3296**

The authors carried out an experiment on five groups of pigs to ascertain whether L-thyroxine, alone or with stilboestrol, enhanced the growth promoting effects of antibiotics. Results varied. Toxicity, which the authors considered to be due to stilboestrol, was noticed in one group. In two other groups there was a significant growth response—attributed to the

addition of L-thyroxine to diets containing an antibiotic.—T. E. GATT RUTTER.

HANSON, L. E., CARPENTER, L. E., AUNAN, W. J. & FERRIN, E. F. (1955). The use of arsanilic acid in the production of market pigs.—*J. Anim. Sci.* **14**, 513-524. **3297**

Groups of growing pigs were fed 3 mixed rations containing different levels of protein. Apart from slight differences in weight gain during the immediate post-weaning period, all reached market weight at practically the same time as did pigs allowed a free choice.

Admixture of arsanilic acid at the rate of 60 g. per ton of mixed feed proved non-toxic, produced a consistent increase of about 4% in feed efficiency, as well as small (statistically insignificant) increases in weight gain at all protein levels, but did not appear to have a protein-sparing effect under these conditions.

—G. P. MARSHALL.

MOMOLI-MUCCI. (1954). Sull'uso di una preparazione a base di silicone nel trattamento del timpanismo dei ruminanti. [Use of a silicone compound in treatment of tympanites].—*Gazz. Vet., Milano*. No. 3, pp. 1-6. **3298**

A clin. account of the successful use of a proprietary silicone emulsion ("atimpanico"), by the oral route in acute tympanites in 3 cows, 3 calves and 9 sheep.—G. P. MARSHALL.

SCHMIDT, H. J., NEWELL, G. W. & RAND, W. E. (1954). The controlled feeding of fluorine, as sodium fluoride, to dairy cattle.—*Amer. J. vet. Res.* **15**, 232-239. **3299**

Three years' experimentation revealed that the daily ingestion of 2.5 mg. sodium fluoride per kg. body wt. did not reduce the milk yield of dairy cows through two lactations. Mottling of the incisor teeth was marked in cows fed 20 and 25 mg. fluorine per kg. body wt., but only slight mottling was seen at the 1-mg. level.

—J. A. NICHOLSON.

MUHLER, J. C. & SHAFER, W. G. (1954). Experimental dental caries, IV. The effect of feeding desiccated thyroid and thiouracil on dental caries in rats.—*Science*. **119**, 687-689. **3300**

Rats (groups of 30) on a cariogenic diet show a slight diminution of caries incidence when given either fluoride or thyroid extract. The diminution becomes significant when both are fed. A marked increase occurs with the administration of thiouracil which is not inhibited by fluoride. Ca, F and PO₄ figures are presented.—P. H. HERBERT.

SPISNI, D. & CAPPA, V. (1954). Alimentazione e contenuto di composti indossilici nell'urina di bovini. [Indoxyluria in cattle in relation to nutrition].—*Clin. vet., Milano*. **77**, 65-73. [English summary.] **3301**

In the urine of 75 cattle a decrease in indoxyl compounds was demonstrable after a change-over from a diet consisting of hay, concentrates or starchy matter, and beet, to fresh meadow grass. There was an increase in these compounds on change from either of those diets to a predominantly leguminous diet. These trends were not materially influenced by age, breed or pregnancy.—G. P. MARSHALL.

TORELL, D. T. (1954). An esophageal fistula for animal nutrition studies.—*J. Anim. Sci.* **13**, 878-884. **3302**

A method is described whereby an oesophageal fistula can be kept patent, yet closed at will by means of a plug, or pins. Sheep so treated have been used for the collection of samples in grazing studies.

—P. H. HERBERT.

—. (1954). Nutritional factors and liver diseases. [Edited by: SCHWARZ, K.]—*Ann. N.Y. Acad. Sci.* **57**, 615-962. **3303**

This number consists of the 37 papers read at a conference held early in 1953. Papers are grouped around the clinical concepts of fatty liver and cirrhosis and of liver necrosis, since it is now believed that these two diseases are separate entities. A consistent attempt is made to relate experimental to clinical observations, but the field covered is wide, ranging from experimental work on lipotropic factors, through aetiology and treatment of kwashiorkor and cirrhosis to nutritional patterns in alcoholism.—P. H. HERBERT.

RIDOUT, J. H., LUCAS, C. C., PATTERSON, J. M. & BEST, C. H. (1954). Changes in chemical composition during the development of "cholesterol fatty livers".—*Biochem. J.* **58**, 297-301. **3304**

The authors presented analyses of the nature of the fat deposition occurring in the liver of rats kept on lipotropic diets and fed cholesterol at various levels.—P. H. HERBERT.

ANDERSSON, P. (1954). ACTH-test pa normala kor. [The A.C.T.H. eosinophile test in the normal cow].—*Nord. VetMed.* **6**, 979-986. [In Swedish. English and German summaries.] **3305**

Examination of leucocyte, eosinophile and differential counts, and blood sugar, nitrogen,

calcium and phosphorus in healthy cows dosed with 0.01 to 1.5 mg. of adrenocorticotropic hormone per kg. body wt. showed that 0.25-mg. doses produced effects on the blood picture, but that 1 mg. was required to produce a definite effect on the blood sugar. With such doses, blood samples should be taken 6 to 8 hours after injection. The method is likely to be of value in diagnosis of fatty degeneration of the adrenal cortex in cattle, which is stated to be not uncommon in Sweden.

—F. R. PAULSEN.

FERGUSON, N. L. (1954). Relationship between maternal liver fat and foetal weight in ovine pregnancy. [Correspondence.] *Nature, Lond.* **174**, 277-278.

3306

Ewes were fed a high plane diet for the first 100 days of pregnancy and then divided into two groups—one of which was maintained on the same diet and the other on a low plane diet. The weights of the foetuses and the total liver fat of the ewes were determined after slaughter at the end of pregnancy. A significant positive correlation between the fat in the ewe's liver and the weight of her foetuses was found in the case of the low-plane animals, but the correlation between these two variables was not significant in the high-plane group.

—J. A. NICHOLSON.

CHALMERS, M. I., CUTHBERTSON, D. P. & SYNGE, R. L. M. (1954). Ruminal ammonia formation in relation to the protein requirement of sheep. I. Duodenal administration and heat processing as factors influencing fate of casein supplements.—*J. agric. Sci.* **44**, 254-262. [Authors' summary slightly modified.] **3307**

Nitrogen-balance experiments showed that casein supplements fed to hill ewes on a low plane of nutrition in the later stages of pregnancy were used very ineffectively, despite the animals' need for protein.

The authors confirmed the findings of McDonald [V.B. **22**, 3464] that extensive conversion of casein to ammonia occurs in the rumen, with absorption of ammonia into the blood stream.

Casein administered to sheep by duodenal fistula was better utilized than when administered by ruminal fistula. The course of dissolution in the rumen of casein in the form of tough lumps was observed by a staining procedure.

It was found possible to process casein in a way that led to better utilization. This processed casein gave less ammonia in the rumen.

It was concluded that the formation in the rumen of ammonia from proteins may be an

important factor determining their usefulness to the animal. Processing may have effects on the value of a protein for ruminants quite different from those on the value for non-ruminants. The authors criticized the tendency to value proteins solely in terms of their digestibility; they suggested that casein has disadvantages as a "standard protein" in nutrition experiments with ruminants.

WHIPPLE, G. H., HILL, R. B., Jr., TERRY, R., LUCAS, F. V. & YUILE, C. L. (1955). The placenta and protein metabolism. Transfer studies using carbon¹⁴-labeled proteins in dogs.—*J. exp. Med.* **101**, 617-626. [Authors' summary modified.] **3308**

Plasma proteins tagged *in vivo* by feeding D-L-lysine- ϵ -C¹⁴ to donor dogs were administered to pregnant dogs by both the oral and intravenous routes.

A relatively small percentage of the C¹⁴ activity originally incorporated in these proteins was found to pass from mother to foetus after intravenous injection. The amount transferred tended to increase with the length of gestation period and total number of foetuses.

Plasma protein labelled with I¹³¹ and Evans blue dye does not cross the placenta in the dog.

After oral administration of labelled plasma protein or lysine, C¹⁴ is transferred promptly and in considerable quantity to the foetus.

The chorionic epithelium, g. for g., is probably 2 to 3 times as active as the hepatic epithelium in protein metabolism.

These findings indicate an important placental function related to maternal and foetal protein metabolism. While the placenta utilizes maternal plasma proteins and amino-acids, in a quantitative sense the latter appear to supply the major nitrogen needs of the growing foetus.

HART, P. C. (1954). Onderzoek naar het cobaltgehalte van runderleveren. [Cobalt content of the liver of cattle.]—*Tijdschr. Diergeneesk.* **79**, 517-528. [English, French and German summaries.] **3309**

The cobalt content of the liver in 31 cattle used in fattening experiments with methylthiouracil ("vevoron") and in 31 untreated controls was estimated by a colorimetric method. There was no significant difference between the treated animals and the controls (averages respectively 0.37 μ g. and 0.34 μ g. per g.) nor between the total cobalt content of the liver in individuals in the two groups, although the weight of the liver in the treated cattle was

greater. The Co concentrations were not influenced by conditions such as liver-abscesses, mastitis, etc.—C. A. VAN DORSEN.

CUNNINGHAM, I. J. (1954). Copper deficiency in cattle and sheep.—*N.Z.J. Agric.* 88, 369, 371 & 373-374. 3310

Low copper and high molybdenum soils are widely scattered throughout New Zealand and are not restricted to peaty areas. In cattle (but not sheep) the unthriftiness induced by copper-deficiency is accompanied by severe persistent scouring when molybdenum poisoning is also present. Sulphates may neutralize the latter effect. C. reviewed the treatment and prevention of the diseases and discussed the results of preventive measures.—P. H. HERBERT.

BARBER, R. S., BRAUDE, R. & MITCHELL, K. G. (1955). Studies on anaemia in pigs. I. The provision of iron by intramuscular injection.—*Vet. Rec.* 67, 348-349. 3311

The fall in haemoglobin seen in piglets raised indoors was prevented by single i/m inj. of 2 ml. "iron dextran complex" (50 mg. Fe per ml.) given on the seventh day of life. Single i/m inj. of 2 ml. of a suspension of ferric phosphate (50 mg. Fe per ml.) failed to arrest the decline.—D. POYNTER.

BUSH, J. A., JENSEN, W. N., CARTWRIGHT, G. E. & WINTROBE, M. M. (1955). Blood volume studies in normal and anemic swine.—*Amer. J. Physiol.* 181, 9-14. 3312

Using the ^{32}P and the ^{59}Fe methods the authors measured the volumes of r.b.c., plasma and total blood in normal pigs and in pigs with experimentally induced anaemia.

—T. E. GATT RUTTER.

SCHREIBER, R. (1955). Über die Zusammenhänge zwischen der Düngung der Kulturpflanzen und der Mineralstoffversorgung der landwirtschaftlichen Nutztiere, unter besonderer Berücksichtigung der Phosphorsäure. [Relationships between the manuring of fodder plants and the mineral metabolism of farm animals, with special reference to phosphoric acid.]—*Tierärztl. Umsch.* 10, 1-7. 3313

A discussion of the importance of phosphoric acid in plant and animal metabolism, in the latter particularly in relation to calcium and vitamin D, as background to a warning that the present marked phosphoric acid depletion of German agricultural soil urgently requires rectification by the use of greater quantities of phosphate fertilizers.—G. P. MARSHALL.

MANN, I. (1954). A mobile bone meal factory to counter phosphorus deficiency in African livestock.—*Colon. Pl. Anim. Prod.* 4, 275-292. 3314

M. reproduced a questionnaire which had been sent to Kenya farmers with a view to ascertaining the incidence of phosphorus deficiency in the colony. There is mineral deficiency in most of Kenya except the coastal fringe. He discussed the advantages of a mobile unit to produce bone meal from locally collected bones. He gave figures indicating that such a unit could repay the capital outlay in 4 years and thereafter show a profit while producing cheap meal.—A.S.

SEEKLES, L. & BOOGAERT, J. (1954). Uitkomsten van een voederproef met magnesium-oxyde-houdende voederkoekjes ter voorkoming van grastetanie. [Results of a feeding experiment with cattle cake containing magnesium oxide on the occurrence of grass tetany.]—*Tijdschr. Diergeneesk.* 80, 331-346. [English, French and German summaries.] 3315

The feeding of cattle cake containing the equiv. of 50 g. MgO per cow per day during the critical weeks for hypomagnesaemia, appeared to reduce the incidence of the disease. Four out of 976 cows so treated developed hypomagnesaemia, compared with 17 out of 1,426 cows which received no Mg supplement: the incidence of the condition in the control group was lower than in previous years, this being attributed to abnormal weather. Commercial quality MgO was used. In the opinion of the authors, no advantage was to be gained from the continual feeding of a Mg supplement.

—R.M.

I.—BOSTICCO, A. & ARNAUDO, M. (1954). Contributo allo studio delle variazioni ematologiche in vitelli trattati con alte dosi di vitamine "A" e "D" associate. [Haematological changes following the parenteral administration of high doses of vitamins A and D combined, to calves.]—*Atti Soc. Ital. Sci. vet.* 8, pp. 282-285. [English and German summaries.] 3316

II.—BOSTICCO, A. & ARNAUDO, M. (1954). Reperti ematologici e loro variazioni in vitelli trattati con alte dosi di vitamina B_{12} ed acido folico. [Blood picture of calves following the parenteral administration of high doses of vitamin B_{12} and folic acid.]—*Ibid.* pp. 285-288. [English and German summaries.] 3317

III.—BOSTICCO, A. & ARNAUDO, M. (1954).

Ricerche sulle variazioni ematologiche in vitelli razionati con alimenti integrati in manganese. [Blood picture of calves fed a ration supplemented with manganese.]—*Ibid.* pp. 288-291. [English and German summaries.]

3318

IV.—ARNAUDO, M. (1954). Rilievi ed osservazioni sulle variazioni ematologiche in vitelli razionati con alimenti integrati in cobalto. [Blood picture of calves fed a ration supplemented with cobalt.]—*Ibid.* pp. 291-294. [English and German summaries.]

3319

V.—BOSTICCO, A. & ARNAUDO, M. (1954). Contributo allo studio di complessi preparati con oligoelementi minerali: osservazioni sulle variazioni ematologiche in vitelli all'uopo razionati. [Blood picture of calves fed a ration supplemented with mixtures of trace elements.]—*Ibid.* pp. 294-296. [English and German summaries.]

3320

I.-IV.—Four groups of calves, each consisting of two animals aged 4-18 months, were given one of the following treatments:—parenteral injection of 750,000 I.U. vitamin A with 300,000 I.U. vitamin D once weekly for a month; parenteral injection of 3,570 µg. folic acid with 40 µg. vitamin B₁₂, once weekly for a month; 25 mg. manganese administered daily in the food for 20 days; 2 µg. cobalt administered similarly in the food. The authors were unable to detect any changes in the r.b.c. and w.b.c. counts, the haemoglobin content of the blood, or the electrophoretic pattern of the serum, which could be attributed to the above treatment.

V.—Twelve calves were each given daily in the food for 20 days different combinations of the following salts:—200 mg. CuSO₄, 100 mg. MnSO₄, 1.25 g. FeSO₄, 10 mg. CoSO₄, 6.5 g. KI. There was a moderate increase in the r.b.c. count of calves given CuSO₄ + CoSO₄ and in those given FeSO₄ + MnSO₄. There were no changes in the w.b.c. count, haemoglobin content of the blood, or electrophoretic pattern of the serum which could be attributed to the action of these minerals.—R.M.

SCHOOP, G. (1955). Die Bedeutung des Vitamin A für die Entwicklung der Ferkel vor und nach der Geburt. [The role of vitamin A in the development of piglets before and after birth.]—*Tierärztl. Umsch.* 10, 194-200.

3321

S. discussed ante- and postnatal losses in pigs from vitamin A deficiency, and described symptoms.—A.S.

THOMAS, J. W., OKAMOTO, M. & MOORE, L. A. (1954). The ulnar epiphyseal cartilage width

in normal and rachitic calves and its use compared to other methods of detecting rickets.—*J. Dairy Sci.* 37, 1220-1226.

3322

Values for Holstein and Jersey calves are given up to time of ossification (about 8 months) together with formulae which may be used to determine physiological (skeletal) age by X-ray techniques.—P. H. HERBERT.

FRÖLICH, A. (1954). Relation between vitamin D and vitamin B₁₂. [Correspondence.]—*Nature, Lond.* 174, 462-463.

3323

A relationship between the growth stimulating effect of pure vitamin B₁₂ and the content of calcium, iron and vitamin D in the diet of chicks has been noted. Further experiments showed that supplementing the diet with vitamin B₁₂ eliminated the growth depressing effect of vitamin D supplements.

—J. A. NICHOLSON.

PAUL, R. M., LEWIS, J. A. & DELUCA, H. A. (1954). The lack of effect of vitamin E on the blood clotting mechanism.—*Canad. J. Biochem. Physiol.* 32, 347-353.

3324

Vitamin E administered daily to human subjects in doses of 600 mg. for 7 days did not change clotting times, prothrombin times or plasma fibrinogen levels. There was a small increase in platelets; statistically this proved to be of borderline significance.—R. GWATKIN.

TRIBE, D. E. (1954). Observations on the feeding behaviour of rats and chicks deficient in vitamin E.—*J. Hyg., Camb.* 52, 315-320.

3325

Vitamin E deficient rats and chicks, as well as normal chicks failed to discriminate between two diets which were identical except that in one there was a deficiency of vitamin E whereas the other contained adequate amounts. This suggests that animals do not always choose the foods best suited to satisfy their requirements.—J. A. NICHOLSON.

WEINSTOCK, I. M., GOLDRICH, A. D. & MILHORAT, A. T. (1955). Enzyme studies in muscular dystrophy. I. Muscle proteolytic activity and vitamin E-deficiency.—*Proc. Soc. exp. Biol., N.Y.* 88, 257-260. [Authors' summary modified.]

3326

The proteolytic activity of homogenates and extracts of muscles of rabbits with muscular dystrophy induced by vitamin E deficiency was assayed with denatured haemoglobin as substrate.

Vitamin E deficiency resulted in increased proteolytic activity per g. wet weight of muscle and per mg. of muscle protein nitrogen of both the extracts and homogenates.

No change in proteolytic activity of spleen, kidney or liver was observed during vitamin E deficiency.

HEINRICH, H. C., SCHADACH, W. & WUNNENBERG, U. (1954). Die biochemischen Grundlagen der Diagnostik und Therapie der Vitamin B₁₂-Mangelzustände (B₁₂-Hypo- u. Avitaminosen) des Menschen und der Haustiere. III. Der Serum-Vitamin B₁₂-Spiegel bei einigen Haustieren. [Vitamin B₁₂ deficiency in man and domestic animals. III. Vitamin B₁₂ levels in the serum of domestic animals.]—*Dtsch. tierärztl. Wschr.* 61, 179-181. **3327**

The free and total vitamin B₁₂ serum concentrations were determined in horses, cattle, sheep, pigs, rabbits and fowls, by means of a microbiological technique using the phytoflagellate *Euglena gracilis* var. *bacillaris*. From the wide variations found in cattle, pigs and sheep the authors concluded that this test, when further developed, may constitute a means of diagnosing vitamin B₁₂ deficiency in these species.—G. P. MARSHALL.

FERGUSON, T. M. & COUCH, J. R. (1954). Further gross observations on the B₁₂-deficient chick embryo.—*J. Nutr.* 54, 361-370. **3328**

Anomalies as described by earlier workers were observed in 23% of 291 embryos obtained from eggs of vitamin B₁₂-depleted Single Comb White Leghorn hens. Other abnormalities found included enlargement of the thyroid gland, haemorrhages into the yolk sac, thinning in the wall of the digestive tract, generalized oedema, fatty infiltration of the liver or abnormality of the heart (55%) and fatty infiltration of the kidneys. Injection of the vitamin into hens or eggs prevented the abnormalities.—P. H. HERBERT.

BEHRENS, H. (1955). Die Rumenotoxaemie beim Schaf. [Gastro-enteritis in sheep.]—*Dtsch. tierärztl. Wschr.* 62, 83-86. **3329**

See also absts. 3475 (report, Australia); 3476 (report, New Zealand).

DISEASES, GENERAL

DONKER-VOET, J., VAN DORSSEN, C. A. & VAN DEN VLERK, J. (1953). Overzicht der onderzoeken van het uit de praktijk ingezonden ziektemateriaal over het jaar 1952. [Summary of material pathologically examined at the Institute for Infectious Diseases at Utrecht University during 1952.]—*Tijdschr. Diergeneesk.* 78, 941-947. [English, French and German summaries.] **3333**

An account of acute gastro-enteritis with heavy mortality among sheep on stubble in Germany. No clostridial enterotoxins were demonstrable. B. considers that it was an auto-intoxication caused by ingestion of large quantities of unripe or sprouting grain left on the stubble owing to bad weather at harvest time.—ANNIE LITTLEJOHN.

LEWIS, E. F. (1955). Post-parturient metabolic disorders in the cow. An approach to therapy with special reference to prolonged recumbency.—*Brit. vet. J.* 111, 253-257. **3330**

L. discussed the possible causes and treatment of post-parturient recumbency and metabolic disorders.—T. E. GATT RUTTER.

PARRY, H. B. (1954). Induction of toxæmia of pregnancy in sheep.—*J. Physiol.* 126, No. 2, p. 40P of Proceedings. [Only abst. given. Abst. from abst.] **3331**

Confirmation was obtained that pregnancy toxæmia may occur in well-fed ewes subjected to a sudden reduction in food intake. In toxæmia the carotid blood pressure was normal, but raised during fits. The blood-sugar level fell and haemoconcentration occurred in the later stages of the disease. The liver contained an excessive quantity of fat and adrenal cortical pallor was observed. The ratio adrenal weight/thyroid weight was doubled.

—J. A. NICHOLSON.

SETCHELL, B. P. & MCCLYMONT, G. L. (1955). Depression in brain potassium in ovine pregnancy toxæmia. [Correspondence.]—*Nature, Lond.* 175, 998. **3332**

The mean potassium content of slices of cerebral cortex from cases of pregnancy toxæmia was significantly lower than that of normal slices, whilst slices from insulin-treated sheep had a still lower K content. The authors discussed this in relation to their tentative identification of the condition as a hypoglycaemic encephalopathy.—D. POYNTER.

A report on the examination of 1,636 specimens. *Erysipelothrix (Listeria) monocytogenes* was isolated from a fowl, *Pasteurella septica* from a puppy, a gosling, a rabbit and a pig and *Past. pseudotuberculosis* from hares, from a gibbon, a cat, a nutria, and from cage birds. *Salmonella typhi-murium* was isolated from a gosling and *S. bareilly* from two chicks. Human type TB. was diagnosed in three dogs.

bovine type TB: in a cat, a pig, a panther and a tiger. An acid-fast culture from tuberculous lesions of a Malay bear was avirulent for laboratory animals. Many cases of canary pox were seen.—C. A. VAN DORSEN.

MARLEY, J. (1954). **Animal disease distribution in the territory of Papua and New Guinea.**—11 pp. Territory of Papua and New Guinea, Department of Agriculture, Stock and Fisheries: Acting Chief of Division of Animal Industry. [Mimeographed.] **3334**

A list of animal diseases and parasites found in the territory is given. The list is complete up to the 30th Sept., 1954, and an indication is given as to the certainty of diagnosis of each, *i.e.*, whether laboratory confirmed or not.—W. S. MARSHALL.

SULLIVAN, J. F., THOMPSON, C. H., Jr. & FOSTER, N. M. (1955). **Colonylike structures in the propagation of strains of the agents of chronic respiratory disease and turkey sinusitis in vitro.**—*Cornell Vet.* **45**, 248-253. [Authors' summary modified.] **3335**

Minute artefacts, resembling colonies of pleuropneumonia-like organisms, were observed on serum-enriched solid media: they were probably soap crystals formed from serum in the media. These structures increased in number when transferred to fresh medium, in a manner simulating the multiplication of micro-organisms. The agents of chronic respiratory disease of fowls and infectious sinusitis of turkeys could not be propagated on solid media once these pseudo-colonies were established.

HINSHAW, W. R. (1955). **Turkey disease research 1916-1955.**—*Mich. St. Coll. Vet.* **15**, 160-175. **3336**

An annotation of the progress of turkey disease research in the U.S.A.—D. LUKE.

I.—OTTAWAY, C. W. (1954). **Discussion: Physiological and pathological aspects of locomotion in man and animals. Physiological aspects in animals.**—*Proc. R. Soc. Med.* **47**, 959-961. **3337**

II.—JONES, E. W. (1954). **Discussion: Physiological and pathological aspects of locomotion in man and animals. Pathological aspects of locomotion in animals.**—*Ibid.* 961-962. **3338**

I.—The whole body should be regarded as a single functional locomotory unit. Arrangement of structures in any limb of any species is in keeping with an established, slowly evolved pattern of locomotory behaviour, whether for movement or support. The arrangement of the shoulder in the domestic species; the hip-joint

("an area of great anatomical fascination"); and the stifle or knee ("the key joint of the body") are briefly discussed.

II.—The occurrence of certain traumatic conditions brings out the importance of anatomical weak spots, particularly where a direct relationship exists between comparative incidence and comparative anatomy, especially functional anatomy. Examples are given. Diagnosis, including X-ray, in the large domestic animal is made difficult by size and muscle bulk, so that it is important to recognize patterns of locomotion characteristic of disease in any one part.—W. R. BETT.

BEHRENS, H. (1953). **Über Liquoruntersuchungen mit der Mastix-Lumbotest-Reaktion und der Salzsäure-Collargol-Reaktion beim Pferd.** [The use of the mastic and the colloidal gold tests on the cerebrospinal fluid of the horse.]—*Mh. Tierheilk.* **5**, 391-396. **3339**

The c.s.f. of 70 neurologically normal horses was examined by the mastic and the colloidal gold tests. Neither test gave uniform results, and B. concluded that their use for diagnostic purposes was very limited in the horse.—R. B. HOLCOMBE.

WINQVIST, G. (1954). **Morphology of the blood and the hemopoietic organs in cattle under normal and some experimental conditions.**—*Thesis, Uppsala*, pp. 157. [Acta anat. Suppl. 21, pp. 157.] **3340**

Much of the work relates to embryonic haemopoiesis, and the morphology of bone-marrow, thymus, spleen, lymph nodes and haemolymph nodes, including reference to phosphatase activity. Four calves up to 48 days old and 8 adult goats were treated with adrenocorticotrophic hormone and cortisone acetate. Both drugs had similar effects on the blood picture. Eosinophiles dropped 84% and neutrophiles rose, decidedly less consistently, but on the average as much; certain cases showed a four to fivefold rise. Similar results have been obtained in human beings. After cannulation of the thoracic duct in 14 calves and 8 goats, similar blood picture changes were induced (surgical stress). There was depletion of lymphocytes from the thymic cortex. One goat was able to maintain almost normal levels of cells in both lymph and blood throughout 100 hours during which the lymph flowed away.—F. L. M. DAWSON.

PEDINI, B. (1955). **Esplorazione funzionale del fegato nel bovino.** [Hepatic function tests

in cattle.]—*Vet. Ital.* **6**, 610-623. [English, French and German summaries.] **3341**

P. considered that the quantitative and qualitative assessment of blood bilirubin constituted a useful hepatic function test in a number of liver diseases of cattle.

—T. E. GATT RUTTER.

BELLI, G. & CHINI, P. (1954). Il test di Woolf nelle epatopatie dei bovini. [The iodine test for serum described by Woolf in the diagnosis of disease of the liver in cattle.]—*Atti Soc. Ital. Sci. vet.* **8**, 671-673. [English and French summaries.] **3342**

The liver function test described by Woolf (1951) consists of adding to one drop of serum one drop of the following reagent:—iodine 2 g., potassium iodide 4 g., water 30 ml. The test is read after 1-2 min. and a positive result, indicating a liver disorder, consists of the formation of a precipitate. The authors used this test on the serum of 50 cattle at an abattoir: 25 out of 26 healthy cattle gave a negative test result and 23 out of 24 cattle with diseased livers (principally *Fasciola* and *echinococcus* infestation) gave a positive result.—R.M.

MARR, A. & JARRETT, W. F. H. (1955). Displacement of the abomasum associated with peptic ulceration in a cow.—*Vet. Rec.* **67**, 332-335. **3343**

Displacement of the abomasum to the left side of the abdomen of a cow was caused by adhesions resulting from a large peptic ulcer of the abomasum. The displacement probably originated during pregnancy.—R.M.

GARLICK, N. L. (1954). The teeth of the ox in clinical diagnosis. III. Developmental anomalies and general pathology.—*Amer. J. vet. Res.* **15**, 500-508. **3344**

G. examined the teeth of 7,480 slaughtered beef cattle. The following developmental abnormalities were encountered:—absence of certain teeth, the presence of supernumerary teeth, rotation and malposition of incisors and molars, abnormalities in the deposition of enamel, accessory cusps, and macrodontia. He also observed traumatic injuries (fracture, depression), retention of the temporary teeth, hypoplasia, disturbances in calcification and in enamel formation, and dental caries.—R.M.

MAQSOOD, M. (1954). Preliminary observations on vitiligo in buffaloes.—*Ceylon vet. J.* **2**, 81-82. **3345**

This condition of depigmentation of areas of the skin is described as occurring in Pakistani

buffaloes. The condition spreads progressively from the ventral to the dorsal aspect of the body and does not appear to affect the animals' general condition.—W. S. MARSHALL.

POUNDEN, W. D. (1954). Rumen sampling: a diagnostic aid.—*Vet. Med.* **49**, 221-225 & 228. **3346**

P. discussed the method of collecting samples of ruminal fluid and the information that can be gained from such sampling. Diagnostic assistance arises from observations of a physical nature on passing the stomach tube, and from macroscopic and microscopic examination of the sample. He emphasized the role played by ruminal micro-organisms in cases of indigestion and suggested that a further study of these organisms should be profitable.—W. S. MARSHALL.

BRION, A. & COTTEREAU, P. (1954). La rhinite atrophique contagieuse du porc. [Atrophic rhinitis of swine.]—*Rev. Méd. vét.* **105**, 705-719. **3347**

A general discussion of the disease.—A.S.

SWITZER, W. P. (1953). Studies on infectious atrophic rhinitis of swine. II. Intraperitoneal and intranasal inoculation of young pigs with a filterable agent isolated from nasal mucosa of swine.—*Vet. Med.* **48**, 392-394. **3348**

S. had isolated in chick embryos a filterable agent from the nasal mucosa of pigs with atrophic rhinitis and he describes the production of severe pericarditis, and to a lesser extent pleuritis and peritonitis, in pigs, 6 weeks old, by the intraperitoneal injection of material from chick embryos infected with this agent. Examination of field cases of peritonitis in pigs revealed the presence of the same agent. Intranasal instillation of infective chick embryo material did not cause atrophy of the turbinate bones, but the infective agent could still be recovered from the nasal cavity 17 weeks after inoculation.—R.M.

KRISTJANSSON, F. K. & GWATKIN, R. (1955). The effect of infectious atrophic rhinitis on weight for age in swine.—*Canad. J. agric. Sci.* **35**, 139-142. **3349**

At P.M. examination of 234 pigs sent for slaughter from one farm 49 were found to be affected with atrophic rhinitis. Only 3 of the 27 sows that gave birth to both infected and normal pigs had lesions of the disease. Pigs infected with rhinitis were significantly lighter at 56, 84, 112, 140 and 168 days of age than their normal litter mates. Analysis indicates

that piglets born light in weight may be more susceptible to infection than heavier litter mates.—P. J. G. PLUMMER.

BAUMANN, R., KRENN, E. & LIEBISCH, H. (1955). Histologische Untersuchungen über die käsigé Lymphknotenentzündung des Schweines. [Histology of caseous lesions in the mesenteric lymph nodes in pigs—differentiation from tuberculous lymphadenitis.]—*Wien. tierärztl. Mschr.* **42**, 34-38. [English, French and Italian summaries.] 3350

An account of the histology of caseous lesions of unknown aetiology in the mesenteric lymph nodes described by Krenn (1954). They were differentiated from tuberculous lymphadenitis by well-defined calcification, distinct hyalinization of the capsule, and the comparative absence of cellular granulation tissue.

—W. G. SILLER.

KING, A. S. & SMITH, R. N. (1955). A comparison of the anatomy of the intervertebral disc in dog and man. With reference to herniation of the nucleus pulposus.—*Brit. vet. J.* **3**, 135-149. 3351

The authors made a comparative study of the intervertebral disc in the dog and in man and noted five points of difference which concern:—(1) the contours of the articular surfaces of the vertebral bodies; (2) the conformation of the surfaces of the disc; (3) the conjugal and intra-articular ligaments; (4) the final histological maturation changes in the nucleus pulposus; and (5) the relationship between disc length and vertebral mobility in the thoracic and lumbar regions. They discussed the possible influence of these differences and of posture on herniation of the nucleus pulposus.

—T. E. GATT RUTTER.

TYNDALE-BISCOE, C. H. & WILLIAMS, R. M. (1955). A study of natural mortality in a wild population of the rabbit, *Oryctolagus cuniculus* (L.).—*N.Z. J. Sci. Tech. Sect. B.* **36**, 561-580. 3352

The authors described observations on a wild rabbit colony, from which they calculated the chances of survival of the rabbit at successive periods in its life. The survival rate per 26-day period was about 70% for the first 120 days of life, after which it rose to the adult rate of 89%. Young animals were particularly susceptible to coccidiosis (*Eimeria stiedae*) and to the attacks of predators.—A.S.

ROSENTHAL, R. L. (1955). Relationships among hematopoiesis, blood coagulation, hemorrhage and mortality in the guinea pig after total

body X-irradiation.—*Blood.* **10**, 510-527. [Interlingua summary.] 3353

Blood, bone-marrow, and coagulation and their relationship to mortality in g. pigs exposed to X-irradiation were studied. For the first 3 doses of irradiation (LD_{10} — LD_{100}) the initial responses were similar; there were marked differences in regeneration and these were noticeable in decreasing order after 200 r and 400 r and not at all after 600 r. A coagulation defect, closely related to thrombocytopenia was observed in the 6-13 day period following all doses of irradiation. Another clotting defect characterized by increases in the prothrombin and heparin clotting times was noted after all 3 doses of irradiation. Haemorrhage, evaluated by a semi-quantitative scoring method, was most prominent in the 9-13 day period after exposure and was closely related to thrombocytopenia. Haemorrhage became more protracted and severe and involved more organs as the dose increased; it disappeared rapidly as platelet formation returned in the recovery period. It was the chief factor in the severity and incidence of anaemia after irradiation.

—T. E. GATT RUTTER.

UPTON, A. C., FURTH, J. & CHRISTENBERRY, K. W. (1954). Late effects of thermal neutron irradiation in mice.—*Cancer Res.* **14**, 682-690. [Authors' summary slightly modified.] 3354

Pathological effects caused in mice by irradiation in the thermal column (thermal neutrons and gamma rays) were qualitatively indistinguishable from those of X-irradiation.

The relative biological effectiveness of thermal neutron radiation was essentially the same for most late effects, such as induction of leukaemia and other neoplasms and reduction of longevity, as for acute lethality and acute haematological injury.

The relative biological effectiveness of thermal neutrons was several times higher for cataract induction than for acute lethality.

The mouse, like man, is susceptible to induction of myeloid leukaemia by relatively low doses of ionizing radiation.

FACCINCANI, F. & CARATI, M. (1954). Gli ematonomoduli delle valvole cardiache. [Blood cysts of the valves of the heart in animals.]—*Riv. Med. vet., Parma.* **6**, 407-418. [English, French and German summaries.] 3355

The authors described the macroscopic and microscopic appearance of blood cysts on heart valves and the resulting changes in the hearts of a 7-month bovine foetus, a 3-year-old bullock, a 5-year-old bull and a 7-year-old dog.

They considered that these cysts were congenital ectasiae of the nutrient vessels of the valves.

—T. E. GATT RUTTER.

KELLY, M. (1955). Does reduced blood-supply cause pain?—*Lancet.* **268**, 747-748. 3356

As a result of his and other workers' observations K. considered that an impaired nerve supply, rather than a diminished blood flow, was the cause of so-called "ischaemic pain".—T. E. GATT RUTTER.

TAPLIN, G. V., MEREDITH, O. M., Jr. & KADE, H. (1955). The radioactive (I^{131} -tagged) rose

See also abst. 3485 (book, diseases transmitted from animals to man).

POISONS AND POISONING

MCGIRR, J. L., PAPWORTH, D. S. & PARR, W. H. (1954). Ammonium sulphate poisoning. [Correspondence.]—*Vet. Rec.* **66**, 553-554. 3358

In order to throw some light on the toxicity of ammonium sulphate, a calf weighing 274 lb. was drenched with 50 g. ammonium sulphate; a week later 50 g. was given and two weeks later a further 200 g. was given. No symptoms of any kind were observed and feeding was not affected. [See also *V.B.* **22**, 3161.]

—J. A. NICHOLSON.

SANCHEZ BOTIJA, R. (1955). La intoxicación fluorósica de origen industrial en el ganado bovino. [Fluorine poisoning of cattle from industrial processes.]—*Rev. Patron. Biol. anim.* **1**, 183-196. 3359

The author recorded the results of investigation of an outbreak of fluorine poisoning on a dairy farm near a hyperphosphate factory in the Maliaño (Santander) district, Spain. He described an acute form (due to prolonged heavy contamination of the pasture, absence of wind and rain) a subacute, and a chronic form. The acute type was characterized by a sudden onset of nervous symptoms—muscular tremors, unsteady gait, excitability and aggressiveness followed by acute dermatitis which did not respond to treatment but which eventually cleared up spontaneously. Conjunctivitis was seen in some cases. A flock of 200 sheep on the same farm was also affected, the symptoms being obstinate dermatitis with loss of wool, acute malnutrition and a rickets-like condition. There was no sharp line of demarcation between the subacute and the chronic forms. About 3-4% of the affected animals were lame and some were unable to stand. Exostoses, of various sizes, were noticed in the ribs of 30-45% and,

bengal uptake-excretion test for liver function using external gamma-ray scintillation counting techniques.—*J. Lab. clin. Med.* **45**, 665-678. 3357

The radio-active (I^{131} -tagged) rose bengal uptake-excretion test for liver function in rabbits was found to be easy to apply, highly sensitive and relatively safe. Preliminary results indicated that certain liver diseases produced typical uptake-excretion patterns but further investigations and modifications of the test for clinical application were considered necessary.

—T. E. GATT RUTTER.

less frequently, on the metacarpal, the inferior and superior maxillary bones. Spontaneous fracture of the coxal bones occurred in two apparently healthy mares. There was loss of condition in 80% of the affected animals and marked cachexia in some. The bone changes were characterized by rarefaction and ossifying osteitis. The teeth lost their lustre, became porous and mottled, owing to partial or total loss of enamel, and became blackened. The fluorine content of the bones was estimated at 14-19 times the normal.—T. E. GATT RUTTER.

GAGE, J. C. (1955). Blood cholinesterase values in early diagnosis of excessive exposure to phosphorus insecticides.—*Brit. med. J.* June 4th, 1370-1372. 3360

The cholinesterase content of the r.b.c. and plasma of 19 normal human beings was measured at monthly intervals over a period of one year. There was no evidence of seasonal variations. The coefficient of individual variation was 12.8 for r.b.c. and 21.3 for plasma. G. discussed this variation and also the establishment of limits of cholinesterase activity as an index of excessive exposure to insecticides.

—T. E. GATT RUTTER.

BOBROV, R. A. (1955). Use of plants as biological indicators of smog in the air of Los Angeles County.—*Science.* **121**, 510-511. 3361

Poa annua (annual bluegrass) is the most sensitive plant available. Fresh leaf material is best. B. gave an account of a detailed study of the histological changes after exposure to "smog" conditions. He demonstrated the characteristic nature of "smog" damage as distinct from any other phytotoxic change and enumerated the reasons for the choice of this species of grass.—W. S. MARSHALL.

VLAHOS, K., MCENTEE, K., OLAFSON, P. & HANSEL, W. (1955). **Destruction and restoration of spermatogenesis in a bull experimentally poisoned with highly chlorinated naphthalene.**—*Cornell Vet.* **45**, 198-209. [Authors' summary modified.]

3362

A yearling bull was poisoned with a total of 1.8 g. of a mixture of penta- and hexachlorinated naphthalene, divided into small doses and given mixed with the food over a period of 2 months. Following administration of this substance the vitamin A content of the blood plasma dropped from 22 to 4 µg. per 100 ml. Motile spermatozoa were absent from the semen for approx. 6 months after administration and the concentration of spermatozoa varied from 0 to 200 per cu. mm. for approx. 4 months. The semen returned to normal about 10 months after administration of the chlorinated naphthalene had ceased.

Following recovery, the bull was mated with two heifers, and both conceived. The authors concluded that a bull may be severely poisoned with highly chlorinated naphthalene and yet be fertile upon recovery.

HOEKSTRA, W. G., DICKE, R. J. & PHILLIPS, P. H. (1954). **Production of hyperkeratosis in calves with a topically applied oil-based insecticide carrier.**—*Amer. J. vet. Res.* **15**, 47-50. [Abst. from authors' summary.]

3363

Hyperkeratosis was produced in calves by topical administration of oil-based insecticides. A mineral oil, commonly used as a carrier for insecticides, produced the clinical skin condition in similar degree whether or not active insecticides (lindane, methoxychlor, thiocyanate compounds) were added to it.

The vitamin A concentration in the blood plasma was somewhat depressed following the application of the oil or oil-based insecticides but did not generally reach the critically low levels which had been observed following the administration of highly chlorinated naphthalene or toxic pelleted feeds [V.B. **21**, 2089 & 3327; **22**, 1092]. The condition produced in this experiment had less effect on the appetite and general well-being of calves than that produced with toxic feeds.

McPHERSON, E. A. (1955). **Metaldehyde poisoning.**—*Vet. Rec.* **67**, 184-185.

3364

After ingesting an undetermined quantity of slug killer, a wire-haired fox terrier developed paralysis, followed later by generalized tetany and excitement. With the aid of sedative

treatment, the symptoms passed off completely within 36 hours.—G. P. MARSHALL.

Fox, H. J. & FRANCE, W. H. (1954). **Bracken poisoning in cattle.**—*Vet. Rec.* **66**, 711-712.

3365

Since a severe leucopenia and thrombocytopenia is associated with bracken poisoning, it was thought that a blood examination of all cattle in a herd in which cases of bracken poisoning had occurred might enable treatment to begin before actual clin. symptoms of poisoning occurred. Examination of blood samples from cattle from four herds in which cases of poisoning had occurred suggested that the leucopenia develops too late to be of help in diagnosis. Nicotinamide and vitamin K administration is considered to be the best line of treatment.—J. A. NICHOLSON.

CHWALIBÓG, J. & BRZOZOWSKI, B. (1955). **Przypadek masowego zatrucia koni lubinem.** [Lupin poisoning in horses.]—*Méd. vét., Varsovie.* **II**, 166.

3366

An account of an outbreak of lupin poisoning in which as a result of prolonged feeding with lupin 16 out of 33 horses died. Clinically the affected horses manifested incoordination of movement, dulness, icterus of the visible mucous membranes and, in one case, the urine was blood stained. P.M. examination revealed widespread jaundice, petechiae under the epicardium, hydropericardium, congestion and oedema of the lungs, marked enlargement of and fatty changes in the liver; the intestinal contents were blood stained. In the authors' opinion the surviving horses would never fully recover from the irreversible liver changes.

—M. GITTER.

BOLTON, J. F. (1955). **Rhododendron poisoning.** [Correspondence.]—*Vet. Rec.* **118**, 138-139.

3367

B. considers that cases of rhododendron poisoning are more common in hill sheep than is generally supposed. Losses occur annually from this cause, particularly in the winter months during severe weather. Rams appear to be particularly susceptible.

—J. A. NICHOLSON.

GALE, L. E., GIBSON, M. R. & SCOTT, P. M. (1954). **Investigation of the reported toxicity to rats of *Gliricidia sepium*, Jacq.**—*Science.* **120**, 500-501.

3368

A study of the effect of *G. sepium* when fed to albino rats, both in the fresh and dried state, failed to reveal any signs of toxicity. Extracts

prepared from the leaves, seeds, fruit and roots also appeared to be non-toxic.

—J. A. NICHOLSON.

JANOWSKI, W. & LEWANDOWSKI, L. (1955). Zatrucia bydla szalejem jadowitym w roku 1954. [Water hemlock (*Cicuta virosa*) poisoning in cattle.]—*Méd. vét., Varsovie*. **11**, 166-167. [In Polish.] **3369**

Following an exceptionally late, cold and dry spring and a warm, dry autumn in 1954 cattle grazed on low-lying, marshy land where *C. virosa* grows abundantly. The authors stated that cattle find the plant palatable and are attracted by its smell. They discussed the literature and described the clin. symptoms and the P.M. findings. Death occurs from within a few hours up to 24 hours after ingestion and is preceded by clonic spasms and opisthotonus. The peracute nature of the poisoning renders treatment almost impossible. Cattle should be prevented from grazing in the neighbourhood of water reservoirs on low-lying pastures especially during drought.—M. GITTER.

I.—PRIBICEVIC, S., SEKOVIC, N., MAGAZINOVIC, V. & RAJEVSKI, L. (1954). Trovanje svinja obalskim cickom *Xanthium saccharatum* Wallr. ssp. *italicum* (Mor) Hayek. [Cocklebur (*Xanthium saccharatum*) poisoning in pigs.]—*Veterinaria, Sarajevo*. **3**, 34-38. [In Croat. Abst. from English summary.] **3370**

II.—PRIBICEVIC, S. & SEKOVIC, N. (1954). [Experimental study of *Xanthium saccharatum* poisoning.]—*Acta vet., Belgrade*. **4**, No. 1, pp. 58-64. [In Serbian. Abst. from English summary.] **3371**

I.—The authors attributed an outbreak of sudden death in young pigs to poisoning with *Xanth. saccharatum*, a plant commonly occurring beside streams and rivers in Yugoslavia.

II.—Pigs given a ration containing more than 15 g. per kg. body wt. of whole plants of *Xanth. saccharatum* died suddenly 10-15 hours after feeding. P.M. examination revealed gastro-enteritis, degenerative changes in the liver, kidneys and spleen, and subepicardial and

See also absts. 3475 (report, Australia); 3476 (report, New Zealand).

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease)

ROMANELLI, V. (1954). Istamina e anti-istaminici di sintesi in medicina veterinaria. I. Significato fisiologico e fisiopatologico dell'istamina. [Histamine and synthetic anti-histamines in veterinary medicine. I. Physio-

subperitoneal haemorrhages. Pigs fed smaller amounts of the whole plant (2-4 g. per kg. body wt. daily) did not develop symptoms, and appeared to acquire a tolerance to increased doses of the plant. Rats given 11-13 ml. per kg. body wt. of a 1 : 1 aqueous extract of the plant died suddenly after 4-8 hours; ether and chloroform extracts were harmless. The active principle appeared to be a glycoside acting mainly on the heart.—R.M.

PILLAI, P. B. K. (1954). Cobra bites in dogs.—*Ceylon vet. J.* **2**, 97-101. **3372**

P. described the symptoms and treatment of cobra bite in two bitches.—W. S. MARSHALL.

SCHNITZER, R. J., GRUNBERG, E., MARUSICH, W. & ENGELBERG, R. (1955). The toxicity of triple mixtures of sulfonamides under conditions of continuous oral administration.—*Antibiot. & Chemother.* **5**, 281-288. [Spanish summary p. 313.] **3373**

Triple mixtures of certain sulphonamides in equal parts inhibited growth in young rats and chicks, causing blood changes in the former; kidney lesions characteristic for the individual components of the mixtures were noticed in rats and rabbits. Sulphapyrimidine mixture was less toxic for rabbits and caused less extensive kidney damage than sulphadiazine. Sulphafurazole did not inhibit growth in rats or chicks and did not cause kidney damage in rats or rabbits.—T. E. GATT RUTTER.

DILLON, B. E. (1955). Acute ergot poisoning in cattle.—*J. Amer. vet. med. Ass.* **126**, 136. **3374**

Acute convulsive ergot poisoning was recorded among calves grazing on irrigated pasture, about 75% of the rye grass being infested with the fungus. Affected animals stood with their heads down, trembling rather violently and when roused moved with a stilted gait and then began leaping into the air, soon falling on their sides exhausted. Pulse and respirations were rapid, temp. 101.2° F. and the mucous membranes pale.

—J. A. NICHOLSON.

logical and pathological significance of histamine.]—*Atti Soc. ital. Sci. vet.* **8**, pp. 41-79. Discussion: pp. 141-144. [English and French summaries.] **3375**

FAUSTINI, R. (1954). Istamina e antiistaminici

di sintesi in medicina veterinaria. II. Gli antiistaminici di sintesi. [Histamine and synthetic antihistamines in veterinary medicine. II. Synthetic antihistamines.]—*Ibid.* pp. 80-120. Discussion: pp. 141-144. [English and French summaries.] **3376**

SEREN, E. (1954). Istamina e antiistaminici di sintesi in medicina veterinaria. III. Gli antiistaminici di sintesi in terapia veterinaria. [Histamine and synthetic antihistamines in veterinary medicine. III. Synthetic antihistamines in therapeutics.]—*Ibid.* pp. 121-141. Discussion: pp. 141-144. [English and French summaries.] **3377**

I.-III.—A general discussion of the role of histamine and synthetic antihistamine preparations in veterinary medicine. Seren confined his discussion to the antihistamine treatment of atony of the forestomachs and bloat in cattle. Each paper contains a long list of references.

—R. M.

CECCARELLI, A. (1954). Nuovi antibiotici ad azione contro i miceti, i virus, i tumori. [New antibiotics active against fungi, viruses and tumours.]—*Zooprofilassi.* **9**, 235-237. **3378**

C. gave examples of specific antifungal compounds, and of others which are antifungal and antibacterial. He outlined their stability and spheres of action. Certain purine and pyrimidine drugs have anti-virus action *in vitro* against the viruses of influenza, Newcastle disease, swine fever, etc. Actinomycetin C has retarded growth of tumours in rats and reduced metastases.—F. R. PAULSEN.

CAMPBELL, K. C. (1954). Erythromycin in veterinary medicine. Recommendations based on more than 200 cases.—*Vet. Med.* **49**, 333-336. **3379**

C. reported clinical experience in the use of erythromycin given orally as 100 mg. tablets in 200 cases of distemper, infectious hepatitis, pneumonia, bronchitis, tonsillitis, otitis media, pyogenic surgical infections, and osteomyelitis in dogs and cats. Response has been good, and no side-effects have been noted.

—W. R. BETT.

RIGDON, R. H., CRASS, G. & MARTIN, N. (1954). Anemia produced by chloramphenicol (chloromycetin) in the duck.—*Arch. Path.* **58**, 85-93. [Authors' summary modified.] **3380**

An anaemia was produced in white Pekin ducks following the oral administration of chloramphenicol, apparently resulting from the effect of the drug on the erythroblasts within the bone marrow. When chloramphenicol is

given, a rapid decrease occurs in the numbers of reticulocytes that are normally present in the peripheral blood of the duck.

The duck is very resistant in comparison with man to the effects of chloramphenicol.

HEIN, H. (1955). *In vitro*-Untersuchungen über die Wirkung von Lotagen auf *Trichomonas foetus* und Bakterien. [Effect *in vitro* of lotagen (a sulphonic acid derivative) on *Tr. foetus* and bacteria.]—*Tierärztl. Umsch.* **10**, 134-137. **3381**

Lotagen (a poly-condensation product of m-cresol-sulphonic acid and methanol) was tested *in vitro* against 63 strains of *Tr. foetus*. Of these, 17.4% were immediately immobilized by a concentration of 0.125%, 87.3% were immobilized by a conc. of 0.25% and all by 0.5%. Seventy-nine strains of different Gram-positive and Gram-negative bacteria, as well as 6 strains of *Candida albicans* proved sensitive to concentrations ranging between 0.15 and 10-20 mg./ml.—G. P. MARSHALL.

PRICE, R. J. & BOTTORFF, C. A. (1954). Effect of 2-acetamido-5-nitrothiazole and 2-amino-5-nitrothiazole on egg production, fertility, hatchability, and weight gains in turkeys.—*Poult. Sci.* **33**, 952-957. **3382**

2-Acetamido-5-nitrothiazole and amino-nitrothiazole were each incorporated in turkey feeds at various levels. Egg production, hatchability, the number of saleable pouls, weight gains and feed consumption were unaffected, while fertility was reduced.

—T. E. GATT RUTTER.

WHITROCK, R. M. & McCORKLE, H. J. (1955). A practical method of anesthesia for prolonged surgical procedures on the goat.—*Proc. Soc. exp. Biol., N.Y.* **88**, 221. [Authors' summary copied *verbatim*.] **3383**

Anesthesia for lengthy surgical procedures in goats was accomplished by the intermittent administration of sodium pentobarbital into a continuous intravenous (jugular) infusion. Adequate airway was maintained with a low tracheotomy.

MATERA, E. A., STOPIGLIA, A. V., ANNUNZIATA, M. & VEIGA, J. S. M. (1953/54). Contribuição para o estudo da raquianesthesia peridural no cão. [Contribution to the study of epidural anaesthesia in the dog.]—*Rev. Fac. Med. Vet., S. Paulo.* **5**, 137-147. [English summary.] **3384**

The authors reported excellent results in 23 dogs with a method of caudal anaesthesia employing procaine either in 5% solution with

adrenaline (17 dogs) or in 8% solution without adrenaline (6 dogs) in small doses of 1 ml. per 5-6 kg. body wt.

In comparison with the use of larger doses by previous authors, they obtained perfect analgesia and muscle relaxation caudally to the umbilical region, shorter onset (3-5 min.) and longer duration (1.5-2 hours), and found the method to be free from attributable side effects or pre- and post-operative complications.

—G. P. MARSHALL.

STOWE, C. M. (1955). The curariform effect of

See also *absts.* 3098 (mastitis); 3099 (oxytocin); 3103 (bactericidal action of rose bengal stain); 3123 (TB); 3126 & 3129 (effect of antibiotics and disinfectants on mycobacteria); 3154 (bovine leptospirosis); 3161 (vibriosis); 3163 (footrot in sheep); 3173-3174 (blackhead); 3246-3252, and 3255 (insecticides); 3271 & 3277 (anthelmintics); 3291-3296 (antibiotics in nutrition); 3298 (tympanites); 3360 (toxicity of phosphorus insecticides); 3363 (insecticide base as cause of hyperkeratosis); 3373 (toxicity of sulphonamides); 3490 (Proceedings of conference on radioactive isotopes); 3491 (book, treatment of skin diseases).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

EDWARDS, D. C. (1955). Physiology of dairy cattle. The biochemistry and microbiology of the rumen.—*J. Dairy Res.* 22, 232-250. 3386

This review of the literature covers the chemical and microbiological origin of rumen gases, volatile and other fatty acids; the metabolism of cellulose, other carbohydrates, and non-protein nitrogen; and the synthesis of vitamins. The nature and characteristics of the protozoa, microflora and enzymes are outlined.—F. R. PAULSEN.

HAFEZ, E. S. E. & SHAFEI, M. M. (1954). Sweating mechanism in the domestic buffalo.—

Nature, Lond. 174, 1181-1182. 3387

A preliminary account of the histology of the sweat gland in the buffalo. The convoluted body has a twisted duct and two types of glandular epithelium, one columnar and secreting a gel-like material, the other cuboidal and with only a fine precipitate in the lumen.

—A. SEAMAN.

I.—JEWELL, P. A. & ZAIMIS, E. J. (1954). A differentiation between red and white muscle in the cat based on responses to neuromuscular blocking agents.—*J. Physiol.* 124, 417-428. 3388

II.—JEWELL, P. A. & ZAIMIS, E. J. (1954). Changes at the neuromuscular junction of red and white muscle fibres in the cat induced by disuse atrophy and by hypertrophy.—*Ibid.* 429-442. 3389

I.—Decamethonium produces block in the cat's soleus muscle, a red muscle, as a result of depolarization of the motor end-plates which is followed by a curare-like effect of competition with acetylcholine. On the cat's tibialis muscle, a white muscle, decamethonium produces depolarization only.

succinylcholine in the equine and bovine species—a preliminary report.—*Cornell Vet.* 45, 193-197. [Author's summary modified.] 3385

S. described some of the effects of succinylcholine in horses and cattle and concluded that the drug may be used as a muscle relaxant in horses. In cattle the margin of safety appeared to be too narrow to make its use feasible without resorting to artificial respiration. He correlated a decrease in the activity of specific and non-specific cholinesterase in the blood plasma of horses and cattle with the clinical effects of the drug.

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

II.—Further experiments showed that decamethonium blocks atrophied cat's soleus by depolarization only, whereas using hypertrophied soleus, no change in the reaction was noted. With atrophied tibialis muscle also there was no change in the reaction.

—J. A. NICHOLSON.

MONKHOUSE, F. C. (1955). An investigation of the coagulation defect brought about in rabbits and dogs by the intravenous injection of papain.—*Canad. J. Biochem. Physiol.* 33, 112-121. 3390

Papain injected intravenously renders the blood of rabbits and dogs incoagulable, the effect being more pronounced and persistent in the rabbits. In some instances a disturbed coagulation reaction remained two weeks after injection. The effect was attributed in part to the release of heparin, but evidence indicated that other factors such as change in the quality of fibrinogen or an increase in other anti-thrombins may play a role.—P. J. G. PLUMMER.

ROBINSON, I. B. & SARNAT, B. G. (1955). Growth pattern of the pig mandible. A serial roentgenographic study using metallic implants.—*Amer. J. Anat.* 96, 37-64. 3391

Using a combined technique of implantation of dental amalgam in various sites in the jaw bone and serial X-ray photography the authors studied the post-natal growth pattern of the mandible of the pig. This method had the advantage of being a serial study with permanent records in which the implants served as stable reference points with regard to sites, amounts and relative directions of growth.

—T. E. GATT RUTTER.

I.—SIMONNET, H. (1954). Problèmes techniques dans l'étude de la physiologie de la lactation. [Technical problems in the study of the physiology of lactation.]—*Rev. canad. Biol.* **13**, 281-290. **3392**

II.—STERNBERG, J. (1954). Review of several biochemical problems in the physiology of lactation.—*Ibid.* 309-332. [In English.] **3393**

III.—KLEIBER, M. (1954). Precursor-product relationship for milk formation in the intact dairy cow.—*Ibid.* 333-384. [In English.] **3394**

IV.—MEITES, J. (1954). Recent studies on the mechanisms controlling the initiation of lactation.—*Ibid.* 359-370. [In English.] **3395**

I.—The mammary tissue grows more or less rapidly and then undergoes partial autolysis. Intensity of secretion depends on the relative activity of individual cells.

II.—The chemical analysis of milk constituents, their chemistry and their elaboration, and the origin and metabolic fate of fatty acids, lactose and casein were considered in detail. The constituents remain constant for the same species.

III.—The relation between precursor and product was studied in normal intact dairy cows by injection of C^{14} labelled carbonate. Formation of milk fat involves greater delays than either lactose or casein.

IV.—Lactation is held in check by inhibition of prolactin stimulation by oestrogen and progesterone. Prolactin secretion greatly increases at parturition and gland tissue becomes more receptive. Oestrogen may supply the stimulus for increased prolactin synthesis at parturition, but this may come from the mammary gland itself. Suckling is not essential for the initiation of lactation although maximum production is not obtained without it.

—R. GWATKIN.

COWIE, A. T. & TINDAL, J. S. (1955). Maintenance of lactation in adrenalectomized rats with aldosterone and 9α -halo derivatives of hydrocortisone.—*Endocrinology*. **56**, 612-614. [Authors' summary copied verbatim.] **3396**

Virtually complete maintenance of lactation in the rat following adrenalectomy on the fourth day of lactation was obtained by giving 9α -chlorohydrocortisone acetate (100 μ g./day). Partial maintenance was observed with 9α -fluorohydrocortisone acetate (100 μ g./day), aldosterone (50 μ g./day), or hydrocortisone (1 mg./day).

ENGEL, S. (1953). An investigation of the origin of the colostrum cells.—*J. Anat.*

Lond. **87**, 362-366.

3397

Histological examination of the mammary glands of women who had died during or shortly after parturition revealed that the colostrum cells originate from proliferated and degenerated cells of the ducts. The majority appear to be epithelial in nature while a few belong to the family of wandering cells.

—J. A. NICHOLSON.

SMALCELJ, I. & CAMO, E. (1954). Prinos rjesenju problema o utjecaju suncane svjetlosti na muznost krava. [Influence of sunlight on the milking capacity of cows.]—*Veterinaria, Sarajevo*. **3**, 10-18. [In Croat. Abst. from English summary.] **3398**

Cows exposed to sunlight for 6 hours daily over a period of 2 months in midsummer in Northern Bosnia gave slightly higher milk yields than before exposure. The authors suggested that the beneficial effect of exposure to the sun on milk yield was mainly cancelled out by the inhibitory effect of increased environmental temperature. Exposure to sun during the early morning and before sunset, when the sun's rays are relatively poor in heat rays but rich in ultra-violet rays, should overcome this difficulty.—R.M.

SASTRY, G. A. & DHANDA, M. R. (1953). Studies on the blood of mules. I. Haematological. II. Chemical.—*Indian vet. J.* **29**, 395-405 & 478-482. **3399**

Normal values for haematological characters and chemical constituents of the blood of ten mules were determined and compared with corresponding values for ten horses, all kept at Mukteswar (7,500 ft.). The blood of the mules was characterized by slightly larger erythrocytes; higher packed cell volume, mean corpuscular volume and haemoglobin; longer prothrombin time; lower icterus index and bilirubin; lower Ca and P, and higher gamma-globulin. The authors confirmed the absence of reticulocytes from the blood of horses.—R. N. MOHAN.

RUSOFF, L. L., SCHEIN, M. W. & VIZINAT, J. J. (1955). Blood studies of Red Sindhi-Jersey crosses. III. Effect of a fixed hot environment on blood constituent levels of Jerseys and Sindhi-Jersey crosses.—*Science*. **121**, 437-438. **3400**

No significant differences in haemoglobin, haematocrit, plasma Ca + P were observed on 26 of these animals after 6-hour exposures to high temperatures.—G. FULTON ROBERTS.

KLEMENT, A. W., Jr., AYER, D. E. & ROGERS, E. B. (1955). Simultaneous use of Cr⁵¹ and T-1824 dye in blood volume studies in the goat.—*Amer. J. Physiol.* **181**, 15-18. [Abst. from authors' summary.] **3401**

The blood volume was estimated in 20 goats using simultaneously r.b.c. labelled with radio-active chromium and plasma labelled with Evans blue dye. The former method yielded a mean value of 6.10%, and the latter 7.35% of the body wt., the mean total volume being 7.05% of the body wt.

ANDERSEN, S. (1954). Extramedulläre Myelopoese beim Rinde. [Extramedullary myelopoiesis in cattle.]—*Zbl. VetMed.* **I**, 673-681. [English, French and Spanish summaries.] **3402**

The author concluded that extramedullary myelopoiesis was normal in the ox, having observed the process in the lymph nodes, thymus, gastric and intestinal mucosae and spleen of cattle.—T. E. GATT RUTTER.

ARCHER, R. K. (1954). Bone marrow biopsy in the horse: a study of the normal marrow cytology in cross-bred ponies.—*Vet. Rec.* **66**, 261-264. **3403**

The author obtained, by aspiration biopsy, bone marrow from the tuber coxae of 12 cross-bred ponies whose age varied from a few months to 12 years. Differential cell counts gave the following results:—polymorphonuclear neutrophile leucocytes 8-25%; polymorph. basophile 0-0.3%; polymorph. eosinophile 0.5-6%; neutrophile myelocytes 11-29%; eosinophile myelocytes 0.7-3%; promyelocytes 0.1-1%; myeloblasts 0-0.7%; lymphocytes 3-20%; plasma cells 0-0.7%; pro-erythroblasts 0-1%.—R.M.

RUBINSTEIN, D. & DENSTEDT, O. F. (1953). The metabolism of the erythrocyte. III. The tricarboxylic acid cycle in the avian erythrocyte.—*J. biol. Chem.* **204**, 623-637. **3404**

Fowl r.b.c. were found to contain all enzymes necessary for the Krebs cycle. The specific properties of the more active enzymes were examined. The r.b.c. of fowls differed, during storage at 5° C., from mammalian r.b.c. in metabolizing pyruvate and intermediaries but not glucose.—P. H. HERBERT.

WEHMEYER, P. (1954). Concentration of plasma proteins in the ox. I. Individual differences.—*Nord. VetMed.* **6**, 717-736. [In English, German and Danish summaries.] **3405**

W. studied the composition of the blood in

206 cattle. The absolute albumin and absolute globulin concentrations varied independently of each other. There was a linear relationship between the serum globulin concentration and the logarithm of the formol gel-formation time but no relationship between the former and the fibrinogen concentration. In citrated blood, there was a relationship between the cell volume and the erythrocyte sedimentation rate, whilst in artificial mixtures of erythrocytes and citrated plasma, the sedimentation rate depended on the cell volume and the serum protein concentration but not on the fibrinogen concentration.

—A. ACKROYD.

TOHA, J., ESKUCHE, I., ABARCA, F., SALVATORE, F. & HODGSON, G. (1955). Chemical properties of a plasma factor accelerating haemoglobin recovery in bled rabbits. [Correspondence.]—*Nature, Lond.* **175**, 167-168. **3406**

A plasma factor accelerating recovery after haemorrhage can be extracted with acetone or water from heat-coagulated plasma protein. Dialysable and inactivated by oxygen, it probably has an ultra-violet spectrum.

—JOHN SEAMER.

GRIES, G., GEDIGK, P. & GEORGI, J. (1954). Zur Trennung des direkten und indirekten Bilirubins durch Papierchromatographie. [Separation of direct and indirect bilirubin by paper chromatography.]—*Hoppe-Seyl. Z.* **298**, 132-139. **3407**

The authors examined bilirubin pigments giving "direct" and "indirect" reactions to the van den Bergh test. The pigments were separable by paper chromatography, using filter paper and an aqueous solution. They took this as further evidence of a chemical difference between the substances.—A.S.

I.—DAWES, G. S., MOTT, J. C. & WIDDICOMBE, J. G. (1955). The cardiac murmur from the patent ductus arteriosus in newborn lambs.—*J. Physiol.* **128**, 344-360. **3408**

II.—DAWES, G. S., MOTT, J. C. & WIDDICOMBE, J. G. (1955). The patency of the ductus arteriosus in newborn lambs and its physiological consequences.—*Ibid.* 361-383. [Authors' summaries slightly modified.] **3409**

I.—Some minutes after delivery of a newborn lamb a cardiac murmur becomes audible over the left side of the chest. This murmur is caused by blood flowing at high velocity through a constricted ductus arteriosus from aorta to pulmonary trunk. The murmur is sometimes accompanied by a thrill, felt on

palpating the pulmonary trunk, and associated with very rapid oscillations of pressure in the pulmonary pulse.

The authors discussed the physical conditions which determine the appearance of the murmur and thrill, and variations in their intensity.

II.—In the new-born lamb the ductus arteriosus is patent for many hours after birth, as shown by the presence of a cardiac murmur, by observations of blood pressure changes, and by the effects of temporary occlusion of the ductus on the pressures in the great vessels. Within a few minutes of birth blood begins to flow through the ductus arteriosus from the aorta to the lungs. Measurements of the oxygen content of blood samples from the carotid artery, right ventricle, and pulmonary artery show that from $\frac{1}{2}$ to $\frac{2}{3}$ of pulmonary blood flow may pass through the ductus arteriosus, so that the output of the left ventricle may be very much greater than that of the right.

The lungs of the new-born lamb are inefficient, and consequently the arterial oxygen saturation rises only slowly after birth. Temporary occlusion of the ductus arteriosus after birth reduces very substantially the volume of blood flowing through the lungs and causes a fall in arterial oxygen saturation. This fall is comparatively greater when the initial oxygen saturation is low. The reasons for this phenomenon are discussed. The authors suggested that the continued patency of the ductus arteriosus for some hours after birth serves a useful function so long as the lungs are not fully expanded.

HESS, A. (1955). Relation of the ground substance of the central nervous system to the blood-brain barrier. [Correspondence.]—*Nature, Lond.* **175**, 387-388. **3410**

The effectiveness of the blood-brain barrier, which is reduced in the new-born of some species, is shown to be dependent on the integrity of the ground-substance of the c.n.s. as demonstrated by the periodic acid-Schiff stain.—G. FULTON ROBERTS.

SHOLL, D. A. (1953). Dendritic organization in the neurons of the visual and motor cortices of the cat.—*J. Anat., Lond.* **87**, 387-406. **3411**

A description of the sizes and arrangements of the dendrites of neurones in the visual and motor areas of the cerebral cortex of the adult cat.—J. A. NICHOLSON.

BJÖRKMAN, N. (1954). Morphological and histochemical studies on the bovine placenta.—

Acta anat. Suppl. No. 22, pp. 91. [In English.] **3412**

Placentas from 91 cows, distributed rather evenly over the various gestation stages, were studied, and uteri from 12 non-pregnant cows. Tissue samples were fixed 20-30 min. after slaughter. At many points the morphological study failed to confirm previous workers' results. The intercotyledonary area was studied in detail. It was rich in lipids at mid-pregnancy. Histochemical examination was exhaustive, different methods tending to confirm similar findings. The cryptal epithelium was rich, the trophoblast poor in fatty material. B. concluded that this was mainly concerned with nutrition and steroid hormone production. Indications were obtained that chorionic gonadotrophin is elaborated by the trophoblastic giant cells. Alkaline phosphatase activity was strong, *inter alia*, in the trophoblastic giant cells, epithelium of the crypts, and walls of the maternal vessels. It was concluded that this enzyme was implicated in the formation of placental fructose.—F. L. M. DAWSON.

MAQSOOD, M. (1955). Effects of the thyroid gland on fleece growth in sheep.—*Brit. vet. J.* **3**, 163-168. **3413**

Continued treatment of sheep with "Protamone" (iodinated casein containing 0.72% l-thyroxine) produced a significant increase in wool yield and fibre length. Chemical thyroidectomy by continued treatment with 2-thio-6 oxypyrimidine (thiouracil) caused a significant decrease in wool yield and fibre length. In neither case was there any appreciable effect on the fibre diameter. The effect of the thyroid gland on fleece growth was discussed.

—T. E. GATT RUTTER.

FERGUSON, K. A. (1954). Prolonged stimulation of wool growth following injections of ox growth hormone. [Correspondence.]—*Nature, Lond.* **174**, 411. **3414**

Injections of ox growth hormones produced an increase in wool growth in Romney Marsh and Suffolk sheep. The increase continued for a period after treatment. The same results were not observed in Lincoln sheep and it was considered that the prolonged responses of wool growth were due to an immune-type reaction resulting in an increase in the secretion of growth hormone by the sheep's own pituitary or a decrease in its rate of destruction.

—T. E. GATT RUTTER.

BARONE, R. & BACQUES, C. (1952-53). Les glandes surrénales des équidés domestiques.

[The adrenal gland in the horse and the donkey.]—*Bull. Soc. Sci. Vét. Lyon.* 54 & 55, 383-405. **3415**

A detailed account of the macroscopic and microscopic anatomy of the adrenal gland, based on the study of material from 50 horses and 18 donkeys.—A. SEAMAN.

NOBLE, N. L. & PAPAGEORGE, E. (1955). Adrenal glycogen in the guinea pig and in the white rat.—*J. Nutr.* 56, 15-24. [Authors' summary slightly modified.] **3416**

The total glycogen concentration in the g. pig adrenal is of the order of 25 mg. % on a wet tissue basis, and is not appreciably altered by fasting or by inadequate ascorbic acid intake.

The total glycogen conc. in the rat adrenal after fasting periods of 8 to 48 hours ranges generally from 175 to 200 mg. %. It does not differ significantly in the two glands of a pair. The non-fasted rat on a regular dietary regimen, or the fasted rat given glucose or fructose has considerably less adrenal glycogen than the fasted animal. The adrenal of the rat, like the liver, gastrocnemius muscle, diaphragm, and

See also *absts.* 3307 (ruminal ammonia and protein requirement in sheep); 3324 (vitamin E and blood clotting); 3492-3493 (book, vertebrates); 3494 (book, renal function); 3495 (book, environmental physiology).

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

HOVMAND, H. C., JEPSEN, A. & OVERBY, A. J. (1954). Two years of collective mastitis campaign in cooperative dairies with practical control of penicillin-induced starter failures by use of penicillinase or penicillin-resistant starter.—*Nord VetMed.* 6, 591-621. [In English. German and Danish summaries and discussions.] **3418**

In the course of a collective mastitis control campaign the penicillin in the milk from treated cows was inactivated by the addition of penicillinase. The milk was then suitable for the production of butter and cheese. A mixed-strain "starter" culture was used to resist 1.0 unit of penicillin per unit ml. of milk without loss of aroma-forming ability of the culture. [The use of penicillinase has since been prohibited by law in Denmark (see *V.B.* 25, 1803)—*Ed.*

FORREST, S. (1954). A suggested national meat inspection service.—*R. sanit. Inst. J.* 74, 1070-1073. Discussion: pp. 1073-1077. **3419**

The decentralization of abattoirs following the removal of controls in Gt. Britain may lead to a loss of efficiency in inspection. It is proposed therefore to initiate a National Inspectorate staffed by Veterinary Surgeons

heart contains a glycogen fraction which can be readily extracted from the fresh tissue with 10% trichloroacetic acid. This fraction accounts for about one-half of the total glycogen which can be isolated from the adrenal of fed or fasted rats after the usual procedure of alkaline digestion of the tissue.

CAMBER, B. (1954). Salicyloylhydrazide: a reagent of wide use in organic and histochemical analysis. [Correspondence.]—*Nature, Lond.* 174, 1107. **3417**

C. described a means of identifying and estimating ketosteroids using salicyloyl hydrazide. Salicyloylhydrazone, fluorescing brilliantly under ultra-violet light, are formed with aldehydes. With ketones dull blue colours are observed but these are intensified by zinc acetate. By controlling pH or U.V. wavelength it is hoped to identify individual ketosteroids. By converting salicyloylhydrazone to indoanilines colorimetric determinations of ketosteroids are possible.

—J. M. LEACH.

and Sanitary Inspectors. Half the salaries would be paid by the Local Authority and half by the Ministry of Health. Better laboratory facilities should be made available, as well as more facilities for the processing of by-products and condemned meat. The principal objection raised to the scheme was that of the relative cost in comparison with the actual amount of meat that has to be condemned.

—R. MACGREGOR.

I.—MANN, I. (1954). A report on a proposed factory-abattoir for British Somaliland.—pp. 18. Kabete, Kenya: Department of Veterinary Services. [Mimeographed.] **3420**
II.—MANN, I. (1954). Mobile field abattoirs for the Masai Reserve.—pp. 17 + 5 maps & diagrams (separately). Kabete, Kenya: Department of Veterinary Services. [Mimeographed.] **3421**

These two schemes are both intended to deal with the low grade livestock, too weak to travel to the regular abattoirs or of such low value as to be not worth sending. As the owners are averse to destroying such animals, they remain in the herds to the detriment of the grazing grounds. It is hoped to make these smaller abattoirs pay by making full use of

by-products such as bone meal, blood meal, hoof and horn meal, together with a small quantity of fat and dried meat and very inferior hides. It is hoped to pay the cattle owners about 42s. per head and to work on a profit of about 12s. per head. This would not come into competition with the regular abattoirs who would always pay higher prices for grade cattle, but it would, after a certain amount of propaganda, encourage the tribesmen to get rid of unprofitable beasts. The available pasture of British Somaliland and of the Masai Reserve, Kenya, is overstocked and it is estimated that at least 10% of this stock is unprofitable. There is ample local market for the processed by-products, but if this becomes glutted there should be no difficulty in selling overseas.—R. MACGREGOR.

MCKINLEY, W. P., GRICE, H. & CONNELL, M. R. E. (1955). The demonstration of acetyl phosphatide (plasmalogen) in the depot fat of fowl treated with diethylstilbestrol.—*Canad. J. Biochem. Physiol.* **33, 317-322.** 3422

A method which will distinguish between carcasses of male fowls treated with oestrogens and of untreated birds is described. The method depends on the detection of plasmalogen, which is present in depot fat of oestrogen treated birds and laying females but absent in non-laying birds, males or castrated cockerels. The addition of mercuric chloride and Schiff reagent to rendered fat under specific conditions yields a purple colour in the presence of plasmalogen.—A. S. GREIG.

RATCLIFFE, F. N. (1954). Rabbit destruction in Australia. A challenge to landowners.—*Pastoral Rev.* **64, 1173-1174.** 3423

A warning note to beware of complacency in the rabbit control situation. A falling off in myxoma virus activity, inadequacy of insect vectors and a developing immunity in the rabbit population make it probable that myxomatosis has done its worst. R. suggested that other measures should be taken now to ensure complete eradication.—W. S. MARSHALL.

TOMLINSON, A. R., MARSHALL, C. & GOODING, C. D. (1954). Rabbit control with "1080". Experiments at Manjimup, January-July, 1954.—*J. Dep. Agric. W. Aust.* **3, 721-725.** 3424

Sodium fluoroacetate ("1080") has been used with very good results as a rabbit poison in the south-west of Western Australia. It has

properties which make it an ideal vermin poison, but which also necessitate strict official control of distribution and handling. The authors gave details of field tests for rabbit control.—R. I. SOMMERSVILLE.

ANON. (1954). Public Health Laboratory Service. Notes for the guidance of medical officers and general practitioners.—*Mon. Bull. Minist. Hlth Lab. Serv.* **13, 221-233. Appendix pp. 234-237.** 3425

A list of diseases is given together with a list of the material and methods of collection for those diseases, in which the Public Health Laboratory is willing to assist in diagnosis. The list includes brucella infections, psittacosis, rabies, skin and hair infections, and TB.

—W. S. MARSHALL.

WOJTATOWICZ, Z. (1955). Rozwój nauk weterynaryjnych w Rumunskiej Republice Ludowej. [Veterinary science in Roumania.] —*Méd. vét., Varsovie.* **11, 113-114.** 3426

The main research work concentrates around the Institute of Animal Hygiene and Pathology in Bucharest. The production of Aujeszky's disease and anthrax sera, and of vaccines against ovine and caprine contagious agalactia, Newcastle disease, etc., plays a major part in the control of animal diseases in Roumania. The research work carried out in the Institute is published in various professional periodicals and in the Annual Report of the Institute. The institute is to publish a series of monographs for the use of veterinarians in general practice; publication has recently commenced.—M. GITTER.

KORZENIEWSKI, J. (1954). Dziesiec lat weterynarii w Polsce Ludowej. [Veterinary medicine in Poland during 1945-55.]—*Méd. vét., Varsovie.* **10, 373-376. [In Polish.]** 3427

In 1945 a separate Veterinary Department was formed within the Ministry of Agriculture. The Central Veterinary Institute, a branch within this Department, was to train both lay and professional veterinary staff. During the 10 years under review the number of veterinary surgeons in Poland has increased from 1,230 to 2,044. The number of lay inspectors has increased from 26 to 1,580. Several grades of lay staff have been established and trained (inseminators, testers, disinfectors, etc.).

—J. R. MITCHELL.

REPRODUCTION AND REPRODUCTIVE DISORDERS

MAJEWSKI, T. (1954). Sztuczne unasianianie zwierząt gospodarskich. [Artificial insemination in farm animals in Poland.]—*Méd. vét., Varsovie*. **10**, 445-448. [In Polish.] **3428**

In 1947 the first A.I. Station was opened, followed shortly afterwards by four others. The number of cows inseminated rose from 60 in 1947 to 29,500 in 1953.

At the same time A.I. in sheep was introduced and the av. number of ewes inseminated yearly was 7,000. Each A.I. Station consists of: a Director, a veterinary surgeon, inseminators and technicians; each station operates within a radius of 20-30 km.

At the present time almost every county has its own A.I. station.—J. R. MITCHELL.

SCHMIDT, K. (1954). Der Jahreszeitliche Einfluss auf die Spermaproduktion der Bullen. [Seasonal influence on semen production in bulls.]—*Mh. VetMed.* **9**, 349-353. **3429**

An analysis is presented of the correlation between bull semen production and climatic factors. Of these factors temperature, daylight, and humidity in that order influence semen production and fertility.—W. R. BETT.

PERKINS, J. R., CARPENTER, M. C. & SEATH, D. M. (1955). A comparison of the fertility of bull semen diluted in egg yolk-citrate and homogenized milk.—*J. Dairy Sci.* **38**, 155-158. **3430**

In a comparative study of homogenized milk and yolk citrate as diluents for bull semen, the former was found to be the better diluent for 2-day-old semen and the latter for 3-day-old semen.—T. E. GATT RUTTER.

EMMENS, C. W. & BLACKSHAW, A. W. (1955). The fertility of frozen ram and bull semen.—*Aust. vet. J.* **31**, 76-79. [Authors' summary modified.] **3431**

The insemination of fresh, undiluted ram semen gives satisfactory results, but dilution rates of even 1:4 cause a significant fall in fertility which is not prevented by the addition of egg yolk to the medium. Frozen ram semen although of good activity had a fertility rate of about 5% over all trials. Equilibrated, frozen bull semen had a fertility rate equal to that of unfrozen semen. Non-equilibrated bull semen, although of excellent motility, had a lower fertility than equilibrated semen.

SNYDER, J. W. & RALSTON, N. P. (1955). Effect of forced exercise on bull fertility.—*J. Dairy Sci.* **38**, 125-130. **3432**

Exercise did not produce any marked favourable effects on libido, fertility, appetite and general well-being in bulls.

—T. E. GATT RUTTER.

EDWARDS, R. G. (1955). Selective fertilization following the use of sperm mixtures in the mouse. [Correspondence.]—*Nature, Lond.* **175**, 215-216. **3433**

Artificial insemination using mixtures of semen from a number of in-bred lines each containing a suitable genetic marker was carried out in the mouse. A significant excess of eggs fertilized by spermatozoa of a particular type was noted.—J. A. NICHOLSON.

KAEMMERER, K. & KRAMPITZ, G. (1955). Untersuchungen über die "Gelbfärbung" des Spermias. [Investigation into yellow "discoloration" of semen.]—*Fortpflanzung*, **5**, 54-56. [English summary.] **3434**

Detailed experimental data were not presented. The authors stated that they had confirmed Brochart's view, that the colour is due to riboflavin in concentration of 15 µg./ml. in the seminal plasma of bull and goat.

—F. L. M. DAWSON.

SIMUNIC, B. (1954). Zapazanja o utjecaju kvalitete estrusne sluzi na concepciju krava. [Influence of the quality of oestral mucus on conception in cows.]—*Veterinaria, Sarajevo*. **3**, 138-142. [In Croat. Abst. from English summary.] **3435**

The author examined the oestral mucus of some 800 cows at the time of artificial insemination and classified the mucus into clear, bluish, turbid and opalescent types. Whether or not conception occurred was unrelated to the type of mucus.—R.M.

BASSETT, E. G. (1954). Studies in the pelvic region of the ewe during pregnancy and parturition.—*Proc. N.Z. Soc. Anim. Prod.* **14**, 123-125. **3436**

Methods employed to study the normal pelvic canal and attachments included dissection of 50 ewes at varying stages of pregnancy, radiography, and the deep freezing and sectioning of whole, skinned carcasses.

—C. C. BANNATYNE.

BASSETT, E. G. & PHILLIPS, D. S. M. (1955). Changes in the pelvic region of the ewe during pregnancy and parturition.—*N.Z. vet. J.* **3**, 20-24. [Authors' summary copied verbatim.] **3437**

Dissection and X-ray techniques have been used on 70 Romney ewes to define the physical changes in the pelvic region which occur during pregnancy and parturition.

No relaxation of the pubic symphysis was observed at any stage of pregnancy.

Relaxation of the sacro-iliac joints and elongation of the sacro-sciatic ligaments commenced between the second and third months of gestation, and increased progressively during later stages, resulting in a maximum size of the pelvic outlet at or immediately after parturition. Regression of these changes was incomplete in some cases at three months after parturition.

The sacro-lumbar joint appeared to become more flexible towards parturition.

Changes in the soft tissues, which were first observed at a slightly later stage than the bone changes, followed the same general trend. The uterine ligaments and attachments of the reproductive tract in the pelvic cavity elongated with increasing gravidity. The vagina increased both in length and circumference. Changes in the macroscopic appearance of the broad ligaments and other connective tissue structures are described.

The relationship of such findings to problems associated with parturition is discussed.

HARKNESS, M. L. R. & HARKNESS, R. D. (1954). The collagen content of the reproductive tract of the rat during pregnancy and lactation.—*J. Physiol.* **123**, 492-500. **3438**

Estimations showed that during pregnancy in the rat, there was a very rapid formation of collagen in the walls of the uterine horns. A smaller increase was noted in the cervix, but there was no significant change in the vagina. After parturition the collagen content of the uterus fell precipitously.—J. A. NICHOLSON.

CLEGG, M. T., BODA, J. M. & COLE, H. H. (1954). The endometrial cups and allanto-chorionic pouches in the mare with emphasis on the source of equine gonadotrophin.—*Endocrinology*. **54**, 448-463. [Authors' summary modified.] **3439**

One hundred and eight pregnant mares with foetuses ranging in size from 2.2 to 81.3 cm. (crown-rump length) were used in these studies. The gross appearance of the endometrial cups (e.c.) and "allanto-chorionic pouches" (a.p.) was observed in all animals. Histological study was made on sections from e.c. in 22 mares distributed over the period when these structures are present. The gonadotrophic potency was

determined for the e.c. and the e.c. secretion separately in 34 mares. In 64 mares, the combined gonadotrophic activity of the e.c. plus the secretion was evaluated. In 47 cases, assays were made on the blood serum.

The e.c. begin to form in the endometrium at a foetal crown-rump length of 2.0 cm., reach full development at approx. 4.0 cm. and undergo little change until approx. 10.0 cm. Desquamation of the e.c. begins at approx. 10.0 cm. and is complete at a crown-rump length of 30.0 cm. The most marked histological changes occurring are the enlargement of the uterine glands and the hypertrophy of the stomal cells.

Gonadotrophic activity of the e.c. was found in the earliest stages at which these structures could be detected and reached a maximum at approx. 15.0 to 20.9 cm.

The pressure of the accumulating e.c. secretion pushes in the allantochorion until a sac-like structure, the a.p., is formed. The latter are not always found even though desquamating e.c. and large amounts of e.c. secretion are present. The a.p. diminish in size and have disappeared in most stages beyond 30 cm. crown-rump length.

Further evidence that the e.c. secrete gonadotrophin is presented. The hormone appears in the blood coincident with the initial development of the e.c. When stained histochemically for glycoprotein, the e.c. secretion, the uterine epithelium and the glandular epithelium are stained while the large "decidual" cells give little evidence of any reaction, indicating that the epithelial cells in the e.c. area are the source of gonadotrophin.

BASSETT, E. G., SEWELL, O. K. & WHITE, E. P. (1955). Sex hormone studies on sheep.—*N.Z.J. Sci. Tech. Sect. A*, **36**, 437-449. **3440**

Urine was collected from grazing ewes by a continuous method, and androgen and oestrogen assays were carried out on 24-hour samples. Anoestrous ewes' urine had no oestrogenic activity. Constant small daily amounts of oestrogen appeared throughout the breeding season. In pregnant ewes' urine the first signs of oestrogenic activity appeared after 8-18 weeks.—C. C. BANNATYNE.

ROBINSON, J. T. (1955). Quantitative studies on the hormonal induction of oestrus in spayed ewes.—*J. Endocrin.* **12**, 163-173. [Author's summary modified.] **3441**

Seven trials were conducted with 69 ovariectomized Suffolk cross-bred ewes to determine the requirements of oestradiol benzoate, given alone or preceded by 75 mg.

progesterone (6 x 12.5 mg. in oil over 3 days, followed 2 days later by oestrogen), for oestrous behaviour and characteristic vaginal changes. Progesterone pretreatment resulted in a marked increase of sensitivity to oestrogen: for oestrus, the respective values of the median effective dose for oestradiol preceded by progesterone and for oestradiol alone were 22 and 64 μ g.

Progesterone pretreatment resulted in an apparently steeper dose-response line for oestrus, and advanced the mean time of onset by about 12 hours. The behaviour pattern following progesterone-oestradiol appeared to differ from that following oestradiol alone. Oestrus in ewes appears to be under dual hormonal control. Endogenous oestrogen production is insufficient to induce the full psychic and physiological changes associated with normal oestrus, unless the animal has been conditioned previously by progesterone.

BIGGERS, J. D. & CLARINGBOLD, P. J. (1954). Optimum conditions for the local (intravaginal) action of oestrogens.—*Aust. J. biol. Sci.* **7**, 118-139. [Authors' summary modified.] **3442**

The optimum conditions for the intravaginal action of oestrogens were studied in ovariectomized mice, using oestrone, oestradiol, diethylstilboestrol, and 3 proprietary oestrogens. The optimum conditions were similar to those for subcutaneous administration with regard to the period over which injections are spread. The two techniques, however, differ with regard to the frequency of injection; while repeated subdivision of dose in the subcutaneous method increases response, there is a maximum response, reached by four injections, with the intravaginal method. The authors discussed the relation of these results to the quantitative study of oestrogen activity and the local action of oestrogens on the vaginal epithelium.

WESTIN, B. (1955). The influence of some ovarian hormones on the occurrence of mast cells in the mouse uterus.—*Acta path. microbiol. scand.* **36**, 337-342. [In English.] **3443**

Oestrogenic hormone treatment of white female oophorectomized mice reduces the number of mast cells in the uterus from about 21 per transverse section to 2, and additional progesterone administration raises the number to 5. It is suggested that increased water content of the tissues after hormonal stimulation may cause a dissolution of the metachromatic substances of the mast cells.—W. R. BETT.

BOLTON, W. (1955). The effect of injections of oestradiol dipropionate into immature pullets

upon the manganese content of the blood plasma and of some tissues.—*Brit. J. Nutr.* **9**, 170-173. **3444**

The effects of oestradiol dipropionate on the end organ response and on the manganese content of the blood plasma and of certain tissues in immature pullets were investigated. The oestrogen was administered to a control group as a series of equal doses and to the experimental group as a series of increasing (log) doses. The overall effect of log dose treatment was slightly greater than in the control group. The manganese content of the liver of treated birds lay between that of untreated layers and non-layers, but the plasma manganese content greatly exceeded both. B. considered that the manganese in the liver acted as a mobile reserve for egg production.—T. E. GATT RUTTER.

STURKIE, P. D. (1955). Effects of gonadal hormones on blood sugar of the chicken.—*Endocrinology*. **56**, 575-578. **3445**

The effects of hormones on the blood sugar of naturally fed and of starved fowls were investigated. In the normal birds the blood sugar in the hen was 14% higher than in the cock and slightly but significantly higher than in the capon. Fasting reduced the levels in all 3 groups, the rate of reduction being 20% higher in the hen than in the cock. Testosterone depressed the level in hens and capons and diethylstilboestrol reduced it in capons. Neither hormone affected the blood sugar of the normal cock.—T. E. GATT RUTTER.

DERIVAUX, J., BIENFET, V., PEERS, W. & VAN SNICK, G. (1955). La stérilité du taureau. Etude anatomopathologique: l'hypogonadisme. [Sterility in bulls: hypogonadism.]—*Ann. Méd. vét.* **99**, 1-39. **3446**

An account of a histological study, preceded by that of 25 normal controls, of the testicles from 20 subfertile or infertile White Belgian bulls. Semen samples were examined from 3 of these, whose ages ranged from 1-2 years. The results, which are illustrated by excellent photomicrographs, revealed a great majority of anomalies to be unassociated with inflammation. Generally bilateral hypoplasia, but also degeneration of germinal tissue, was observed, only exceptionally involving the interstitial cells. The disease process is divisible into clearly defined stages and the condition is held to be congenital. Suggestions are put forward for investigating its aetiology.

—F. L. M. DAWSON.

JACKSON, H. & BOCK, M. (1955). Effect of triethylene melamine on the fertility of rats.

[Correspondence.]—*Nature, Lond.* **175**, 1037-1038.

3447

In male rats given 0.05 mg./kg. daily of triethylene melamine, sterility persisted for 3-4 weeks after cessation of treatment; rats given 0.2 mg./kg. have remained sterile for 8 weeks. The drug does not interfere with the function of mature spermatozoa, but only with those formed after treatment. At a dosage of 0.2 mg./kg. daily for 5 days the drug did not affect the fertility of adult female rats, but when this treatment was begun on the fourth day after mating with untreated males, complete failure to produce litters resulted.—W. R. BETT.

DE SUTTER, E. (1954). Puerperale stoornissen na keizersnede bij runderen. [Infertility, retention of the placenta and other sequelae to Caesarian section in cattle.]—*Vlaam. diergeneesk. Tijdschr.* **23**, 273-287. [English, French and German summaries.]

3448

S. gave statistics on Caesarian section in the cow, collected from works published by other authors. He found that out of 98 cows delivered by Caesarian section, 8 died; 27 were not served again because of anoestrus, insufficient milk production, metritis, or other reasons; 31 conceived again after 1-2 services and 6 conceived after 3 or more services; 17 were sterile. No data were obtainable for the remaining 9 cows.—C. A. VAN DORSEN.

SAVAGE, A. & ISA, J. M. (1954). Abortion in mares associated with cytoplasmic inclusions.—

3449

Cornell Vet. **44**, 322-323.

In a freshly aborted Thoroughbred foetus the liver was grossly normal but, on staining with haematoxylin and eosin, inclusion bodies were noted. These were cytoplasmic and not intranuclear as in cases of equine virus abortion and resembled those seen in the liver in horses that had developed an acute, fatal disease after receiving equine encephalomyelitis antiserum and vaccine.—J. A. NICHOLSON.

DONOVAN, B. T. & HARRIS, G. W. (1954).

Effect of pituitary stalk section on light-induced oestrus in the ferret.—*Nature, Lond.* **174**, 503-504.

3450

Using a temporal approach the pituitary stalk of 24 ferrets was exposed; in 4 animals the stalk was left intact; in 6 simple section was performed; and in 14 the stalk was cut and a paper plate inserted between the hypothalamus and the pituitary gland. During the winter months 12 of the ferrets, some in each group,

manifested oestrus when exposed to prolonged illumination. Histological findings suggest that hypophyseal portal vessels form a necessary pathway for the light-induced oestrous response.

—J. A. NICHOLSON.

PIRES, A. & CAMBEROS, H. R. (1954). Contribución a la patología del contenido de las bolsas escrotales. [Pathology of the scrotal sac and its contents.]—*Gac. vet., B. Aires.* **16**, 113-137.

3451

A detailed account of the differential diagnosis and treatment of varicocele, hydrocele, haematocele and scrotal [inguinal] hernia. The paper is illustrated with excellent photographs.—R. MACGREGOR.

ANON. (1954). Cryptorchidism with special reference to the condition in the dog. Prepared by the Technical Development Committee.—*Vet. Rec.* **66**, 482-483.

3452

Cryptorchidism occurs in all domestic species, but is said to occur most often in dogs. It is common in dwarf breeds of dogs and in breeds characterized by a shortened skull. The condition is hereditary and in the horse is due to a dominant factor; in the pig, dog and sheep to a recessive factor.

—J. A. NICHOLSON.

v. FABER, H. (1955). Die anormale Federstruktur bei Ausstellungs-Rhodeländern und ihre Ursache. [Abnormal feather structure in Rhode Island Red fowls.]—*Arch. Geflügelk.* **19**, 13-16. [English summary.]

3453

An account of a hereditary condition in Rhode Island Red fowls causing the feathers to assume a brighter sheen and looser texture owing to a reduction in the number of barbs and barbules. Although this is similar to the findings in thyroidectomized birds, in the condition in question the thyroids are hyperaemic and hyperfunctional.—W. G. SILLER.

VISSCHEDIJK, A. H. J. & KUIPER, J. W. (1955). Über die Fehllage des Hühnerembryos im Ei. [Malposition of the chick embryo within the egg.]—*Arch. Geflügelk.* **19**, 73-86. [English and French summaries.]

3454

The incidence of embryonic malposition was on the whole lower when during incubation the eggs were turned hourly instead of thrice daily, the probability factor being 0.065. There was no significant decrease in the incidence of any one particular type of malposition.

—W. G. SILLER.

ZOOTECHNY

BENEZRA R., M.V. (1954). A new index for measuring the adaptability of cattle to tropical conditions.—*J. Anim. Sci.* **13**, 1015. [Only abst. given. Abst. from abst.] **3455**

Taking the normal average body temperature (B.T.) at the rectum as 38.33° C. and the respiration rate (N.R.) as 23 per min., B. evolved a formula for the assessment of the adaptability of cattle to tropical conditions, viz. :—

$$\frac{\text{B.T.}}{38.33} + \frac{\text{N.R.}}{23} \text{. The maximum adaptability}$$

$$\text{would be } 2 : \left[\frac{38.33}{38.33} + \frac{23}{23} = 1 + 1 = 2 \right].$$

N.I.R.

A supplementary index, $\frac{\text{N.R.}}{\text{T.I.T.}}$, was given for

the purpose of assessing the ratio between number of increased respirations per min. and every tenth degree increase in body temperature.—T. E. GATT RUTTER.

KLEMM, G. H. & ROBINSON, K. W. (1955). The heat tolerance of two breeds of calves from 1 to 12 months of age.—*Aust. J. agric. Res.* **6**, 350-364. **3456**

Two grade Australian Illawarra Shorthorn bull calves and two zebu-Hereford cross bull calves were exposed for 7 hours twice a week to each of several atmospheres having dry-bulb temperatures ranging from 85° F. to 108.5° F. and absolute humidities ranging from 6.5 to 16.6 gr. moisture/cu. ft. dry air (vapour pressure 15-40 mm. Hg.). Such exposures were carried out at different ages : 1-3 months, 6-8 months and 12-13 months. Above 95° F. the rectal temp. was greater in the Illawarra Shorthorns. Pulse rates changed little during heat exposure. As the calves aged the panting rate decreased, particularly in the zebu-Hereford. The zebu-Hereford showed a high transcutaneous water loss soon after birth. Skin evaporation was relatively small in the Illawarra Shorthorn at 1-3 months but increased as the calves increased in age. In the zebu-Hereford cross, a fall in skin temp. was observed when the sweat glands became active at approx. 96° F. Evidence is presented to indicate that this superiority of the zebu crossbred is associated with at least two factors :—(a) a better sweating mechanism and (b) decreased heat production. The Illawarra Shorthorn calves have similar reaction values at these ages to the Jersey.—D. F. DOWLING.

YEATES, N. T. M. (1954). Environmental control of coat changes in cattle. [Correspondence.]—*Nature, Lond.* **174**, 609-610. **3457**

Y. described an experiment carried out in Brisbane, Australia, to study the effect of light on seasonal coat changes in cattle. A control group of 4 calves was allowed only natural daylight which was then gradually decreasing with the approaching winter. An experimental group of 4 calves was placed on an increasing plane of light and after 3 months shedding of the coat started at the heads and necks, extending posteriorly. The coats of the controls grew long and woolly as was to be expected with the approach of winter.—T. E. GATT RUTTER.

FREGLY, M. J. (1954). Cross-acclimatization between cold and altitude in rats.—*Amer. J. Physiol.* **176**, 267-274. **3458**

The results of an acclimatization experiment indicated that there is a negative cross-acclimatization both between cold and altitude and between altitude and cold in rats, i.e., rats previously acclimatized for 2 weeks to an altitude of 19,000 ft. had a decreased tolerance to cooling in air at 5° C. as compared with controls not previously acclimatized.

—W. S. MARSHALL.

WILGUS, H. S. & SADLER, W. W. (1954). Incubation factors affecting hatchability of poultry eggs. I. Levels of oxygen and carbon dioxide at high altitude.—*Poul. Sci.* **33**, 460-471. [Authors' summary modified.] **3459**

The authors confirmed the observations that addition of oxygen increases hatchability of hen's and turkey's eggs at high altitudes. They observed marked differences in resistance to hypoxia of embryos from different hens. With an oxygen level of 23-23.5% optimum improvement was obtained in hatchability of hen's eggs and quality of chicks at an altitude of 5,000 ft. The slight additional improvement obtained with a higher level of oxygen was considered insufficient to justify the additional expense. The best results were obtained with a carbon dioxide level of approx. 0.5% in the presence of 23-23.5% of oxygen. At an oxygen level of 20.6%, hatchability rapidly declined as CO₂ was raised above 0.2%. Very early embryonic mortality was correlated with late embryonic mortality. The incubation period was prolonged at very low CO₂ levels in the presence of 23.1% oxygen. CO₂ evidently has a stimulating effect on embryonic development within certain limits.

Factors other than oxygen and CO₂ appear to be involved in variable hatchability at high altitudes. The authors postulated that rate and direction of air flow over the eggs during incubation influence gaseous exchange through the shell and shell membranes.

BIGLAND, C. H. & BALLANTYNE, E. E. (1955). An experiment in hatchery fumigation.—*Canad. J. comp. Med.* **19**, 117-125. **3460**

A method for the fumigation of a large incubator, using 0.7 ml. formalin and 0.47 g. potassium permanganate per cu. ft. of space was described and compared with a control method using formalin on cheese cloth. Fumigation was repeated at 84-hour intervals. Bacteriological studies were conducted on incubator fluff and on surfaces of eggs inoculated with *Bact. coli*, *Staph. aureus* and chicken faeces before and after fumigation. The results on 4 groups of eggs showed that the test method was more effective than the control in reducing bacterial population on clean surfaces, but the presence of faeces prevented decontamination. No embryo mortality resulted even after 4 fumigations. It is suggested that air volume displaced by eggs and the air-tightness of the machine be considered in fumigation procedures.—A. S. GREIG.

HARRY, E. G., GORDON, R. F. & TUCKER, J. F. (1955). The destruction of day-old chicks.—*Brit. vet. J.* **3**, 150-163. **3461**

The authors investigated various methods of euthanasia for the disposal of surplus day-old chicks. They considered that petrol engine exhaust gases and chloroform were the most suitable agents. Methods—e.g. drowning or smothering—involving abrupt asphyxiation without previous narcosis were undesirable because they induced apprehension and struggling.—T. E. GATT RUTTER.

PUHAC, I. & PRIBICEVIC, S. (1954). [Study of behaviour of grazing pigs.]—*Acta vet., Belgrade.* **4**, No. 2, pp. 65-69. [In Serbian. Abst. from English summary.] **3462**

An account of a study of the behaviour of 11 pigs grazing at liberty, without trough feeding, pastures and swamps on an island on the River Danube, Yugoslavia. The authors recorded the time spent grazing, rooting, drinking and resting. The pigs did not wander more than 500-1000 m. from their shelter; they rested during the night and for an average of 2½ hours during the day. The authors concluded that the keeping of pigs as grazing

animals was a possibility only too seldom realized.—R.M.

MARES, R. G. (1954). Animal husbandry, animal industry and animal disease in the Somaliland Protectorate. Part II.—*Brit. vet. J.* **110**, 470-481. **3463**

No accurate livestock census has been made, but estimates made from export figures put the animal population at 10 million sheep, 3 million goats and 2½ million camels. The country is undoubtedly overstocked. Butchery is carried out in the open air and is, on the whole, hygienic. Milk and milk products, principally ghee, are also produced, as well as hides and skins. The main diseases are anthrax, bovine contagious pleuro-pneumonia and rinderpest.—R. MACGREGOR.

DA CAMARA, N. J. G. (1954). Considerações gerais sobre o fomento pecuário no Ultramar. [Breeding, husbandry and diseases of livestock in Mozambique.]—*Rev. Cienc. vet., Lisboa.* **49**, 3-12. **3464**

The climate, though generally regarded as warm, varies considerably at different seasons and even at different times of the day. There are large arid areas, and others in which there is a heavy rainfall, usually seasonal. Many apparently rich pastures are so deficient in essential minerals as to be useless for stock raising. Rinderpest is still the worst disease, but there are many others and many poisonous weeds.—R. MACGREGOR.

POZO LORA, R. (1954). Análisis de la varianza de factores que influencian la duración de la gestación en la yegua de raza española. [Analysis of factors influencing length of gestation in mares of the Andalusian breed.]—*Arch. Zootec., Cordoba.* **3**, 265-276. [English summary.] **3465**

Statistical analysis of 253 pregnancies in mares tended to show that the actual duration of pregnancy is due to factors inherent in the mare, and to a lesser extent in the semen. It is possible also that the month of parturition may have some influence, in that in mares foaling in January gestation averaged 337.9 days while in those foaling in May it averaged 346.1 days. No other factors could be detected.

—R. MACGREGOR.

LANE-PETTER, W. (1954). An intensive system for guinea-pigs.—*J. Hyg., Camb.* **52**, 151-154. **3466**

The author described a battery system of housing consisting of four tiers with wire floor

dens. Important details are the size of the wire mesh, the avoidance of corners and ledges where excreta may accumulate, and con-

venient dimensions. The system is one of proved compatibility with good health and breeding performance.—W. S. MARSHALL.

See also abst. 3476 (report, New Zealand).

TECHNIQUE AND APPARATUS

HENDERSON, R., HORVAT, F. E. & BLOCK, R. J. (1954). A simplified procedure for measuring cellulose digestion by rumen microorganisms.—*Contr. Boyce Thompson Inst.* 17, 337-341. **3467**

The authors found that strips of parchment paper measuring 5.7 cm. by 10.5 cm. were more suitable than cellophane, cotton thread, or wood blocks as a source of cellulose for the study of cellulose digestion by rumen microorganisms *in vitro*. Even when strips had lost 40% of their weight as a result of digestion, they retained sufficient strength to enable the processes of washing, drying and weighing to be carried out without disintegration of the strips.

—R.M.

PERKINS, E. J. (1955). Permanent preparations of nematodes. [Correspondence.]—*Nature, Lond.* 175, 1090. **3468**

An account of a method of mounting nematodes without the use of lactic acid. The specimens are killed, fixed and extended in hot 70% alcohol, washed in 70% alcohol, drained, cleared in creosote and mounted in creosote/methyl methacrylate monomer. The latter is prepared by adding "Perspex" powder to hot creosote until the required viscosity is obtained.

—D. POYNTER.

LYONS, W. R. & JOHNSON, R. E. (1953). Embedding stained mammary glands in plastic.—*Stain Tech.* 28, 201-204. **3469**

The gland is stained, dehydrated, defatted, infiltrated with uncatalysed plastic and embedded in catalysed plastic ("Selectron") in a narrow chamber formed of two slides and two small strips of glass. After baking and cooling, the glass chamber separates readily, leaving a thin slide of plastic suitable for microscopic examination, projection and filing.

—C. A. E. BRIGGS.

MAALØE, O. (1955). The International Reference Preparation for Opacity. Notes and description.—*Bull. World Hlth Org.* 12, 769-775. [French summary. English summary slightly modified.] **3470**

An International Reference Preparation for Opacity has been established by the WHO Expert Committee on Biological Standardization: it is a suspension of Pyrex-glass particles

See also absts. 3101 (routine diagnosis of anthrax); 3111 (electron microscopy of tubercle bacilli); 3112 (preparation of tuberculin); 3170 (cultivation of *Tr. vaginalis*); 3171 (effect of aureomycin on growth of *Tr. vaginalis*); 3179 (floating technique for poultry coecidia); 3214 (cultivation *in vitro* of vesicular exanthema virus); 3221 (cultivation of distemper virus in hamsters); 3228 Newcastle disease diagnosis); 3339 (mastic and colloidal gold test); 3341-3342 (hepatic function tests); 3484 (book, microtomy).

of approx. the size of bacteria, and is similar to the standard for opacity used by the National Institutes of Health (Public Health Service) Bethesda, Md., U.S.A. The preparation, to which has been assigned an opacity of 10 I.U. per ml., may be used for the direct visual estimation of the opacity of bacterial suspensions. It is held, for distribution to national laboratories for biological standards, by the Department of Biological Standards, The State Serum Institute (Statens Serum Institut), Copenhagen, Denmark.

NONIN, S. (1954). [Technique for tapping the lateral ventricles in domestic animals.]—*Acta vet., Belgrade.* 4, No. 1, pp. 80-89. [In Serbian. Abst. from English summary.] **3471**

N. described a technique for inserting a syringe needle into one or both lateral ventricles of the brain of horses, cattle, sheep, pigs, dogs and cats. The operation was preceded by trephining of the frontal bone at a point near the midline, the position of which varied with the species. Local anaesthesia was employed for large animals, general anaesthesia for small animals.—R.M.

BISHOP, E. J., MEDWAY, W. & ARCHIBALD, J. (1955). Radiological methods of investigating the thorax of small animals, including a technic for bronchography.—*N. Amer. Vet.* 36, 477-483. **3472**

The authors discussed radiography of the thorax in small animals as a method of diagnosis and described the technique for bronchography. Involuntary movement, the most difficult of the technical problems met with, could be overcome by employing high kilovoltage, high milliamperage, and the shortest possible time.

—T. E. GATT RUTTER.

BRUGMAN, H. H. & MARTIN, R. (1954). A portable scale for cattle research.—*J. Anim. Sci.* 13, 74-80. **3473**

The authors gave details of the construction of the weighing scale and of its modification for easy transport by trailer. It was suitable for weighing animals up to 2,500 lb.

—W. S. MARSHALL.

REPORTS

CANADA (1954). *Annual report of the Ontario Research Foundation for 1953.* [SPEAKMAN, H. B.] pp. 32. Toronto : The Ontario Research Foundation. [Items of veterinary interest pp. 19-20.]

3474

The missing links in the life cycle of *Taenia crassiceps* have been found. *Echinococcus* is more common in northern Canada than was supposed. The report deals briefly with *Alaria*, filariid nematodes and a bot fly of chipmunks.

—R. GWATKIN.

AUSTRALIA. QUEENSLAND. (1954). *Annual report of the Department of Agriculture and Stock for the year 1953-54.* pp. 109. Brisbane : A. H. Tucker, Govt. Printer. [Report of Division of Animal Industry pp. 60-89, WEBSTER, W.]

3475

MASTITIS due to *Bact. coli* and *Bact. aerogenes* was reported. STAPHYLOCOCCAL MASTITIS is still a problem and does not respond well to streptomycin, streptomycin-penicillin, aureomycin or dibromopropamidine. TUBERCULOSIS appears to be more prevalent in beef cattle than was anticipated. The policy of compulsory testing of herds supplying milk and cream was extended to additional areas. Further cases of MELIOIDOSIS were seen in sheep and goats, one outbreak being in rams newly introduced from another State. Cases of SWINE ERYSPELAS occurred, including one acute outbreak. Pneumonic lungs of pigs were examined at a Brisbane abattoir and *Pasteurella septica* was isolated from 70 of the 100 lungs. This organism was not found in 60 normal lungs. It is thought that swine PNEUMONIA is probably initiated by infection with a virus followed by secondary bacteria. *Salmonella* and GLASSER'S DISEASE were common in pigs. In spite of the extensive use of Strain 19 vaccination there is still a good deal of BRUCELLOSIS abortion in cattle. *Vibrio fetus* has now been found in all dairying districts.

An intradermal skin sensitivity test has been developed for the diagnosis of EPIDIDYMITS in rams caused by a brucella-like organism. The test is read between the third and fourth days and an easily palpable swelling somewhat smaller than a positive tuberculin test reaction is regarded as positive. BRUCELLOSIS in pigs has been eradicated from several piggeries by regular agglutination tests and general control measures. LEPTOSPIROSIS was prevalent in cattle but it responds well to streptomycin. *L. pomona* was incriminated in some cases manifesting acute febrile mastitis. While *L. pomona* is the common species, *L. mitis* was

found in cattle and was the common species in pigs. *L. icterohaemorrhagiae* was found in dogs. *L. pomona* causes abortion and litters of low vitality in pigs and it is suspected that *L. mitis* may also be responsible. Feral pigs may serve as reservoirs of infection for cattle. Of six sows infected with *L. pomona* during pregnancy all farrowed two weeks prematurely but, except in one which had fever and inappetence, no clinical effects were seen. Of 62 piglets produced, 54 were stillborn and only 3 survived more than two days. Leptospira were recovered from 16 piglets and some foetal membranes. Leptospira were excreted in the urine of sows for 4-83 days. Control of BOVINE CONTAGIOUS PLEURO-PNEUMONIA in enzootic areas is now based on regular inspections aimed at encouraging routine preventive inoculation and better husbandry. Cases discovered in meat inspection are traced back to their origin and suitable control measures are applied. The rapid slide agglutination test was compared with the complement-fixation test and found less efficient.

Coccidiosis in calves was treated successfully with mepacrine (syn. "atebrin"). Butter-milk in the feeding rations of poultry reduced mortality from *Eimeria tenella*. Most outbreaks of TICK FEVER in cattle were caused by babesia, but pure infections with *Anaplasma* and *Babesia bigemina* were seen. Most cases of ANAPLASMOSIS were not fatal. The reaction to inoculation with *B. argentina* in preimmunization is difficult to control with standard drugs. Some cattle appear to be susceptible to these drugs and there have been some fatalities. Intercurrent conditions (e.g. SALMONELLOSIS, sometimes seen in cattle after long train journeys) increase the hazards of immunization. Sometimes cattle, after experiencing a satisfactory reaction, develop a progressive anaemia which may be fatal.

"BLACK (OR BLUE) COMB" has become a serious cause of mortality in poultry. The presence of infectious LARYNGO-TRACHEITIS was confirmed and it may be widespread. Only the subacute form was seen.

A disease resembling SWINE POX was confined to piglets. Transmission did not take place by contact but did so readily by application of infected tissue to scarified areas. The louse (*Haematopinus suis*), usually regarded as the vector, was not present. It is thought that *Culicoides* spp. may have acted as vectors.

There was some extension of areas infested with *Siphona (Lyperosia) exigua* in coastal

regions. Spraying trials with toxaphene and chlordane have been carried on for 6 years without evidence of development of resistance by *Boophilus microplus*. In another trial there was a suggestion of resistance to chlordane. Dieldrin has been used for 4 years with satisfactory results. Resistance to benzene hexachloride (B.H.C.), but not to D.D.T., has appeared. B.H.C. is sometimes toxic in hot, humid weather and especially when formulated as an emulsion. When dipping was repeated after three days many cattle died. Further trials on control of BLOWFLY STRIKE on the body of sheep have shown that dieldrin, aldrin and B.H.C. applied by "jetting" provide protection for as long as 20 weeks. D.D.T. did not protect for longer than 8 weeks. Application by "jetting" was much more effective than by spraying which wets only the surface of the fleece.

Heavy infestations with *Haemonchus contortus* caused losses in sheep and *Oesophagostomum columbianum* and *Dictyocaulus filaria* were prevalent.

In a field trial on COPPER DEFICIENCY in sheep a comparison was made of several methods of providing copper. It was administered by drenching once a month ($\frac{3}{4}$ oz. of 4% soln.), drenching every six months with the same dose, injection of copper glycinate (20 mg. Cu and 30 mg. Cu) every six months. All methods appeared to prevent depletion of liver copper but the trial is incomplete. In studies on URINARY CALCULI in sheep the urinary output of sheep fed on lucerne hay was 1,200-2,000 ml. daily, while sheep fed on cereal chaff produced only 400-600 ml. Additions to the cereal diet of bone meal, ground limestone, magnesium salts or protein concentrates did not markedly increase urinary output even when the protein level was raised to that of the lucerne diet. Water intake varied according to urine output.

A chronic disease of horses was reported. The cause is not known but cases show incontinence of urine with scalding of the legs. Mares and geldings were affected and a case of five years' standing was seen.

Feeding tests were carried out with the following plants:—*Acacia georginae* (pods and re-growth of suckers toxic for cattle and sheep); *Macrozamia* sp., further work did not confirm previous findings of fatal liver damage; *Xanthorrhoea hastilis* was not toxic for cattle or rabbits; *Craspedia chrysanthia* was not toxic for sheep even when driven to exhaustion; *Pratia concolor* was not toxic for cattle; *Pandanus whitei*, the soft part of the fruit was not toxic for cattle; *Cryptostegia grandiflora* was

toxic for cattle and horses. "HUMPYBACK" in sheep is thought to be caused by ingestion of the fruiting stage of *Solanum esuriale*. There were a number of cases of plant poisoning including the following:—*Xanthium pungens* (Noogoora Burr), deaths in sheep after ingestion of the cotyledon stage; *Terminalia oblongata*, deaths in sheep; *Myoporum acuminatum*, deaths of pigs and cattle; *Ipomoea calobra* affecting horses, cattle and sheep; *Myoporum deserti*, heavy mortality in cows and calves; *Atalaya hemiglaucia*, suspected losses in horses after eating the berries; *Cheilanthes tenuifolia*, 300 deaths in sheep; *Crotalaria trifoliastrum* and *C. aridicola*, oesophageal disease in horses. *Crotalaria retusa* appears to be the usual cause of "WALKABOUT DISEASE", but the disease has been seen in areas where the plant is not present. *Pteridium aquilinum*, *Trema aspera*, and *Lantana camara* caused sporadic losses in cattle.

Other items of veterinary interest include test matings of rams culled for EPIDIDYMITIS, abnormalities of the vagina interfering with mating, toxicity of copper salts to sheep, drought feeding of sheep, phosphorus and copper deficiencies in cattle (treatment of the latter with molasses and copper sulphate has shown better results than with copper sulphate alone).—H. McL. GORDON.

NEW ZEALAND. (1954). Animal Research Division, Department of Agriculture. Annual report, 1953-54. [FILMER, J. F.] pp. 40. Wellington : R. E. Owen, Govt. Printer. 3476

At the Diagnostic Station at Wallaceville 5,303 cases of disease were investigated involving the examination of 23,843 specimens. ENCEPHALOMALACIA of lambs, a disease not previously recorded in New Zealand, was diagnosed on about 20 properties with heavy mortality on one.

The transmission, control and treatment of BRUCELLOSIS in sheep were discussed. *Leptospira pomona* infection in cattle caused up to 30% abortions on some properties. *Vibrio fetus* infection was diagnosed in a number of herds and was considered a likely cause of infertility in cattle. BLACKHEAD showed a marked increase in incidence and severity among chickens and CORYZA-type diseases were on the increase in commercial poultry flocks. *Psorergates ovis* was detected on two Merino sheep from mid-Canterbury. This was the second record of the parasite outside Australia. The mite was found on two ewes born in New Zealand on a property which had imported Merino rams from Australia. A survey of the

incidence of *Ascaris lumbricoides* in pigs revealed an incidence of 0.1% of 60,000 pigs in the North Island while 10.1% of 1,800 in the South Island were infested. RICKETS in sheep on green feed was investigated. EXUDATIVE DIATHESIS (X DISEASE) in chickens was prevalent; vitamin E deficiency was considered to be the cause. HYPERKERATOSIS in cattle was ascribed to wood preservative containing pentachlorinated naphthalene. FACIAL ECZEMA in sheep occurred sporadically. The incidence and treatment of WHITE MUSCLE DISEASE in sheep was discussed. Pregnant mare's serum as a fertility-promoting factor was investigated. Lambing percentages at birth and effective lambing percentages were proportionately higher than for untreated controls. Losses between lambing and docking were also proportionately higher. Vaginal prolapse was investigated further and comparative studies of the anatomy of the normal pelvis with that of the ewe with vaginal prolapse were made. INFERTILITY in ewes and the role of hormones in relation to reproduction were studied.

Research on artificial insemination in cattle, using the deep-freeze technique, continued. The growth rate, milk and fat yield and milking characteristics in identical and fraternal twins were examined.

An experiment was carried out to determine the effect of the type of pasture nutrition on the lifetime performance of dairy cows at the calf, yearling and mature stages. Four types of pasture nutrition were compared: high-high (good throughout); low-low (poor throughout); high-low (good to first calving and poor thereafter); low-high (low to first calving and good thereafter).

Enquiry into the effect of hormones on growth and production continued and experiments on the hormonal induction of lactation gave encouraging results. Increases of 50-70% in milk and fat yield were recorded in the case of growth hormone while thyrotrophic hormone gave a 15% increase. The grazing behaviour of calves was studied from an early age and certain facts were observed which explain why calves can make good use of a high quality pasture if allowed to do so and which define the conditions necessary for good calf rearing on milk and grass.

The utilization of surplus dairy calves for veal and light-weight beef production was considered. It was proposed to use beef type bulls after the normal dairy herd requirements had been met. Preliminary trials were held and a Jersey \times Aberdeen cross was evolved. Results were satisfactory though complete growth and

carcass data in the case of light-weight stock were not available at the time of reporting.

A milking machine designed at Ruakura was described. Several new features are incorporated including an automatic cleaning system. The machine can be easily assembled by the farmer himself and each part is an independent unit suitable for use in converting older plant.—T. E. GATT RUTTER.

UNION OF SOUTH AFRICA. (1955). Department of Agriculture. Annual report of the Secretary for Agriculture for the year ended 31st August, 1954. [NEVELING, C. H.] *Fmg. S. Afr.* 30, 75-199. [Items of veterinary interest pp. 130-143.]

3477

The activities and policy of the Division of Animal Husbandry and Dairying were reviewed. Research work at Mara and Messina Stations on adaptability, fertility and growth of cattle and on beef production was yielding satisfactory results.

The Director of Veterinary Services reported continued and increasing output of vaccines and laboratory products during the year. ANTHRAX, TUBERCULOSIS and BRUCELLOSIS, TRICHOMONIASIS and VIBRIOSIS were among the numerous diseases investigated. The causal organism of BLUE UDDE in sheep was identified and the production of a suitable vaccine was being studied. Spraying and fly surveys as tsetse control measures continued and the general situation was considered satisfactory as far as *Glossina brevipalpis* and *G. pallidipes* were concerned. The complete destruction of *G. pallidipes*, the tsetse fly which had been responsible for the widespread outbreaks of NAGANA in Zululand in the past, was reported and spraying was therefore discontinued. GLOBIDIOSIS was fairly widespread with a mortality of 10%.

Research on "LUMPY SKIN" DISEASE, HEARTWATER, and SWEATING SICKNESS continued. Investigation of 42 strains of AFRICAN HORSESICKNESS virus by means of the neutralization test showed that they belonged to 7 main types. RABIES was diagnosed in 78 out of 178 specimens examined.

The study of insecticides continued. Tick control received special attention and research on the biology of the Karoo paralysis tick was undertaken by a veterinary officer appointed for the purpose. AUSTRALIAN ITCH (*Psorergates ovis*) was studied in view of the great economic importance it has assumed during recent years.

—T. E. GATT RUTTER.

HONG KONG. (1954). Annual departmental report by the Chairman, Urban Council and

Director of Urban Services for the financial year 1953-54. [BARNETT, K. M. A.] pp. 72. Hong Kong : Govt. Printer. [Report of Senior Veterinary Officer, RIX, J. C., pp. 34-44.]

3478

TUBERCULOSIS is prevalent in the dairy herds. F. & M. DISEASE was found amongst slaughter cattle from Thailand in July 1953.

SWINE ERYSPELAS, PARATYPHOID and SWINE FEVER are endemic. A rabbit attenuated virus vaccine has been used to protect local pigs from SWINE FEVER.

Confirmed cases of RABIES were five dogs and a pig ; 13,854 dogs were inoculated.

—J. A. GRIFFITHS.

GOLD COAST. (1954). Report of the Department of Animal Health for the year 1952-53. pp. 10. Accra : Government Printing Dept. 2s.

3479

The total cattle population was 430,160. BOVINE CONTAGIOUS PLEURO-PNEUMONIA was endemic in all areas.

Fresh lapinized RINDERPEST virus continues to be used with success and immunity has been tested up to two and a half years. Seven imported Anglo-Nubian goats which arrived in December 1952 from the United Kingdom all died from HEARTWATER before the end of March.

Fourteen students were training in the Vom Veterinary School in Nigeria, seven of whom were recruited during the year under review.

—D. S. RABAGLIATI.

INDIA. (1954). Annual Report of the Indian Council of Agricultural Research for 1952-53. pp. 189. Calcutta : Government of India Press. Rs. 3-6 or 5s. 6d. [Items of veterinary interest pp. 46-68.]

3480

BRUCELLOSIS was widespread in some States, with a 50% incidence in individual herds and 12-15% in the villages. Control measures included segregation or disposal of known infected animals and calfhood vaccination with Strain 19 vaccine. Tuberculin testing of cattle and buffaloes continued. Detailed results were not available at the time of reporting, but incidence was higher among buffaloes than cattle. As a control measure reactors were eliminated. TUBERCULOSIS among sheep and goats was also investigated and at Mukteswar the incidence was 1.81% and 5.5% respectively. These animals also gave positive reactions to the Johne test. Concentrated synthetic-medium tuberculin was prepared. JOHNE'S DISEASE in cattle, sheep and goats, and CLOSTRIDIAL DISEASES were investigated. CONTAGIOUS

AGALACTIA in goats was recorded for the first time in Bombay. Mortality was high ; sheep in close contact did not contract the infection. RINDERPEST control by immunization with lapinized virus vaccine continued and 14,013 animals including cattle, buffaloes, sheep and goats were vaccinated. There were no untoward results except some thermal reactions in sheep and goats. The duration of immunity was estimated at just under 3 years in cattle and under 2 in sheep and goats. SHEEP POX was prevalent throughout the year in Bombay and locally prepared vaccine gave good results. CAPRINE CONTAGIOUS PLEURO-PNEUMONIA was investigated.

Comparative studies were made of the specific gravity and composition of buffalo's and cow's milk. The damage caused by ticks to hides and skins and the value of certain insecticides were investigated. Research on leather technology, on warble damage in goat skins and on control and eradication of *Hypoderma* continued.—T. E. GATT RUTTER.

REPUBLIC OF IRELAND. (1954). Dublin County Council. Annual report of the Dublin County Medical Officer on the health and sanitary condition of County Dublin, 1953. pp. 80. Dublin : Fodhla Printing. [Report of Chief Veterinary Officer, FLYNN, J. A., pp. 57-80.]

3481

Of 20,717 cows examined in the course of routine milk and dairy inspection, 20 had acute and 170 chronic MASTITIS. Of the milk samples taken, 8.5% were positive for TUBERCULOSIS. During inspection of abattoirs two carcasses and 14 parts of carcasses were condemned for TB. Sixty cattle had TB. of the lungs. There were no outbreaks of ANTHRAX, SWINE FEVER or PARASITIC MANGE.

—J. A. GRIFFITHS.

U.S.A. (1953). State of California. Thirty-fourth annual report of the Department of Agriculture, period ending December 31, 1953. Bull. Dep. Agric., Calif. 42, 177-499. [Items of veterinary interest pp. 459-495.]

3482

Tuberculin testing was carried out on 1,176,166 cattle of which 0.142% were reactors. Only 100 herds remain infected out of the total of 36,120 herds. All female dairy calves must be vaccinated against BRUCELLOSIS with Strain 19 between 6 and 12 months of age. Male calves may also be vaccinated at the owner's option. During the year 373,247 calves were vaccinated.—J. A. GRIFFITHS.

U.S.A. (1954). **North Dakota. Forty-seventh and forty-eighth annual report of the North Dakota Livestock Sanitary Board to the Governor of North Dakota, years 1953 and 1954.** pp. 55. Grand Forks, N.D. : Holt Printing Co. 3483

Among 29,446 cattle tuberculin tested, there were 23 reactors. Among 272,200 cattle tested for BRUCELLOSIS 2.39% were reactors. Four cattle died from ANTHRAX, and 58 from BLACKLEG. Three cattle were found to be

reactors to johnin. Three cattle died from ENCEPHALITIS.

Twenty-one cases of EQUINE ENCEPHALO-MYELITIS were reported, one being fatal.

Of 120 cases of SWINE ERYSPHELAS 35% were fatal. Thirty-one cases of NECROTIC ENTERITIS were reported ; of these more than half died. There were 200 cases of SWINE FEVER and 19% died. Of 50 pigs with ATROPHIC RHINITIS 35 died.—J. A. GRIFFITHS.

BOOK REVIEWS

GRAY, P. [Head, Department of Biological Sciences, University of Pittsburgh]. (1954). **The microtomist's formulary and guide.** pp. xiii + 794. Philadelphia : The Blakiston Co. ; (London : Constable & Co., Ltd.). 65s. 3484

A book of stains and staining procedures, designed for the biologist. The first part of the text deals with the technique of the preparation of slides of foraminifera, nematodes, diatoms, mites, small crustaceans, insects and animal tissues. The second part, comprising the greater part of the text, lists 3,500 formulae of stains, fixatives, and mounting media. There is a comprehensive bibliography, and the source of the original description of each stain is cited in most instances.—R.M.

HULL, T. G. [Secretary, Council on Scientific Assembly. Director, Bureau of Exhibits, American Medical Association.] (1954). **Diseases transmitted from animals to man.** pp. xx + 717. Springfield, Ill. : Charles C. Thomas ; (Oxford : Blackwell Scientific Publications). 4th Revised Enlarged Edit. 90s. 3485

This book contains chapters contributed by 25 specialists in addition to the author and has grown considerably since the first edition appeared 25 years ago. This new edition has been extensively revised and extended by the addition of new diseases or more detailed information about diseases of which more is now known, e.g. Newcastle disease, regional lymphadenitis (cat-scratch fever), coccidioidomycosis and contagious ecthyma (contagious pustular dermatitis) of sheep. The chapter on foot and mouth disease has been omitted. The book is written for physicians, veterinarians and public health workers, as well as for those engaged in research, and for each of these classes it will continue to prove a valuable work of reference. There are many excellent illustrations and also a number of useful tables which

summarize the diseases transmitted to man by different species of animal.

The first chapter is by W. H. Feldman and deals with tuberculosis. It occupies 60 pages, supplemented by 92 references to published work. Some chapters are very short but all of them have a terminal section headed "Items of note" which summarizes their most important features, making the book of special value for quick reference. There is a good index.

Section I deals with diseases of domestic animals and birds which occasionally affect wild animals and rodents and are transmitted to man. Section 2 covers diseases which primarily affect rodents and wild animals, and Section 3 deals generally with diseases spread by animals to man, including those which are primarily human diseases.

A copy of this book should be available for reference by all who have an interest in animal diseases in relation to human health. Since all except one of the contributors work in the U.S.A. it is perhaps natural that the text should deal particularly with diseases in that country, and this is also reflected in the references to published work, which extend to the year 1951 : but the approach is not by any means an insular one and the problems are dealt with from the point of view of world health.

—E. G. WHITE.

—. (1954). **Toxoplasmosis. Forschungs- und Untersuchungsergebnisse aus den Leipziger Universitätskliniken und -Instituten. [Studies on toxoplasmosis at Leipzig University.]** [Edited by : WILDFÜHR, G.] pp. 176. Jena : Gustav Fischer. DM 18. 3486

A general introduction on the present position of medical research into toxoplasmosis is followed by chapters, contributed by specialists, dealing with different aspects of human toxoplasmosis. The book is well produced and illustrated.—A.S.

MALLIS, A. [Entomologist.] (1954). **Handbook of pest control. The behavior, life history, and control of household pests.** pp. 1068. New York : Mac Nair-Dorland Co. 2nd Edit. \$9.75. **3487**

A comprehensive book of reference on many of the pests that are found associated with human dwellings, dealing with rodents, birds, dry rot and a large number of arthropods. Of more particular veterinary importance are chapters on fleas, flies and mosquitoes, mites and ticks.

The life cycles are described, sometimes in detail, and methods of control given at the end of each chapter, with additional information supplied by a further summary of the chemical agents used in pest control.

It is a large field to cover in one volume, and in an attempt to give a maximum of information, conflicting views have been given on several controversial subjects without critical appraisal. Disproportionate attention has been paid to some conditions, for example a chapter is devoted to the harmless springtail (*Collembola*) but no mention is made of the red mite (*Dermanyssus gallinae*) that sometimes invades houses in large numbers. Another omission of importance is the failure to warn the reader that benzene hexachloride ("gammexane") is toxic to cats, as well as D.D.T.

Nevertheless it is valuable as a practical book of reference and it will be an important aid to those people concerned in the control of pests infesting animal houses.—W. E. PARISH.

LEUPOLD, E. [Direktor des Pathologischen Instituts der Universität Köln.] (1954). **Die Bedeutung des Blutchemismus besonders in Beziehung zu Tumorbildung und Tumorabbau. Der Zell- und Gewebsstoffwechsel als innere Krankheitsbedingung. II.—Importance of blood chemistry, particularly in relation to tumour formation and tumour destruction. (Cell-tissue exchange as factors in internal disease. Part II.)** pp. 207. Stuttgart : Georg Thieme. DM 48. **3488**

After summarizing the basic chemistry of the blood the author deals with the action of drugs promoting tumour formation or the breakdown of tumours. He makes frequent reference to his own work with human patients, and mentions successful treatment of transplanted carcinomas in rats.—A.S.

BACQ, Z. M. [Professeur à l'Université de Liège] & ALEXANDER, P. [Chester Beatty Research Institute, Institute of Cancer Research, Royal Cancer Hospital, London].

(1955). **Radiobiology symposium 1954.** (Symposium de radiobiologie). Proceedings of the Symposium held at Liege, August-September, 1954. pp. xix + 362. London : Butterworths Scientific Publications ; (New York : Academic Press Inc.) 60s. [In English and French.] **3489**

This symposium was an attempt to bring together scientists working in different fields to discuss a common technique. Reprints were circulated beforehand in order to bridge the gap in understanding between workers from different branches of science. A few of the papers are reviews, but the majority consist of new experimental work.

In a brief review it is not easy to cover adequately a volume of this type. Veterinarians will find most interesting the papers entitled :—Radiation death in mammals, Action of ionising radiations on cell constituents, Sulphhydryl protection against mammalian radiation injury, Clinical trials of some chemical radio-sensitizers, Factors controlling the haematopoietic regeneration in whole-body irradiated rats, and Histological changes following parenteral thorium administration.

The organizers of the symposium claim that rapid progress in this field of work can only come from a pooling of the results obtained by physicists, chemists, biologists, and clinicians. Despite this claim, it appears that in the future the use of radioisotopes for biological work will become a discipline in itself in parallel with the history of biochemistry. A study of recent symposia proceedings on the subject of biological radioisotopes indicates how rapidly this infant science is growing.

—D. S. PAPWORTH.

—. (1954). **Radioisotope Conference, 1954.** Proceedings of the Second Conference, Oxford, 19-23 July. Volume I: Medical and physiological applications. Sponsored by the Atomic Energy Research Establishment, Harwell. [Edited by: JOHNSTON, J. E.] pp. xi + 418. London : Butterworths Scientific Publications ; (New York : Academic Press, Inc.) 65s. **3490**

Praise is due to both editors and publishers for the speed with which this book was published after the closure of the Conference.

The sessions dealt with the general divisions of therapy, diagnosis, animal physiology and pathology, biochemistry, plant nutrition and allied subjects. From the veterinary surgeon's point of view the diagnosis, animal physiology and pathology, and biochemistry divisions will prove the most useful, particularly such

subjects as the application of radioisotopes to the detection of tumours in thyroid and brain tissue, to the determination of cardiac output, to blood volume measurements, as well as to a host of other problems.

The papers in this volume should give food for thought concerning advantages to be derived by veterinary research from radioisotopic work ; too often the mystical attraction of a new technique rather than its use in solving a particular problem is the basis for its utilization.—D. S. PAPWORTH.

FRAZIER, C. N. [Edward Wigglesworth Professor of Dermatology, Harvard Medical School, Massachusetts General Hospital, Boston, Massachusetts] & BLANK, I. H. [Research Associate in Dermatology, Harvard Medical School, Massachusetts General Hospital, Boston, Massachusetts]. (1954). *A formulary for external therapy of the skin.* pp. xvi + 118. Springfield, Ill. : Charles C. Thomas ; (Oxford : Blackwell Scientific Publications). 23s. 6d.

3491

This book, designed for use in Massachusetts General Hospital, is worthy of the attentions of the veterinary surgeon and student as a source of sound practical rules for the basic treatment of skin diseases. Successive chapters deal with cleaning of the skin ; ointment vehicles ; emollients and protective dressings ; antipruritics ; anti-bacterial, anti-fungal and anti-parasitic agents ; agents suitable for eczema and seborrhoea ; anti-perspirants. There are useful diagrams to indicate, for instance, what happens when a wet dressing or a suspension of powder in oil is applied to the skin. With each method of treatment theoretical and practical considerations are clearly explained ; the number of formulae does not exceed twenty-one.—R.M.

COLBERT, E. H. [Curator of Fossil Reptiles and Amphibians, The American Museum of Natural History]. (1955). *Evolution of the vertebrates. A history of the backboned animals through time.* pp. xiii + 479. New York : John Wiley & Sons, Inc. ; (London : Chapman & Hall, Ltd.) 72s.

3492

The author traces the development of the vertebrates, with liberal use of comparative illustrations to show the origin and adaptation of structures.

As the book is intended to be a popular introduction he is able to achieve clarity and avoid repetition by mentioning only one or two type species from each animal order. He maintains a feeling for geological time by

describing the animal groups in the order in which they appeared, by noting their advantages over their predecessors, and by inserting chapters summarizing the development and relative importance of the groups at successive periods.

The book is not, however, oversimplified, and the terminology, once explained, is used without hesitation. The author has a good clear style.

The bibliography, given under subject headings, is up to date and selective, with comment on books and papers of particular importance.—A.S.

ADAMSTONE, F. B. [Professor of Zoology, University of Illinois] & SHUMWAY, W. [Dean, Stevens Institute of Technology]. (1954). *A laboratory manual of vertebrate embryology. Anatomy of selected embryos of the frog, chick and pig.* pp. vi + 98. New York : John Wiley & Sons, Inc. ; (London : Chapman & Hall, Ltd.). 3rd Edit. 20s. 3493

A dissection guide to embryos of the pig (10 mm. stage), chick (18th-72nd hour of incubation) and frog (3, 6 and 11 mm. stages). Blank spaces are left for the student's own drawings of structures observed. The manual is bound in loose-leaf form.—R.M.

ROBINSON, J. R. [Assistant Director of Research, Department of Experimental Medicine, Medical Research Council and University of Cambridge]. (1954). *Reflections on renal function.* pp. 163. Oxford : Blackwell Scientific Publications ; (Springfield, Ill. : Charles C. Thomas). 17s. 6d.

3494

This book, based on lectures given at Cambridge, forms a readable, well-annotated and up-to-date survey of renal physiology, in which existing knowledge and unsolved problems are presented in a lucid and unbiased manner. The author has achieved his aim of producing a book which will bridge the gap between the textbook account of renal physiology and the larger treatises on this subject.—R.M.

BURTON, A. C. [Professor of Biophysics, University of Western Ontario] & EDHOLM, O. G. [Head of Division of Human Physiology, National Institute for Medical Research, Medical Research Council, England]. (1955). *Man in a cold environment. Physiological and pathological effects of exposure to low temperatures.* pp. xiv + 273. London : Edward Arnold (Publishers) Ltd. 30s. 3495

During the war much work was done on the effects of low temperature on man. This was

not published in the usual way, and the authors, at the request of the Arctic Panel of the Defence Research Board, have undertaken the task of reviewing the more important developments.

They outline the physical and physiological problems of maintaining a steady thermal state, discuss adaptations to cold in animals, and describe pathological conditions in man resulting from overthrow of the heat balance.—A.S.

ANON. (1955). *Notice sur l'Institut Pasteur d'Algérie. Tome I. Recherches scientifiques ; enseignement et missions ; applications pratiques, 1900-34. Mission permanente, 1900-09. Institut Pasteur d'Algérie, 1910-34. Tome II. 1935-49. [The work of the Pasteur Institute, Algeria from 1900-34 and 1935-49.]* pp. viii + 374 & 619. Algiers : The Institute. **3496**

These two volumes describe the growth, aims and achievements of the Pasteur Institute

in Algeria from 1900-1949.

The objects of the Institute, as defined in its charter, are to carry out fundamental research, to work out practical applications of the results of research, and to teach. Teaching takes the form of instruction of medical, veterinary and other workers in the techniques used at the Institute, and—equally important—the education of the general public by means of readily understood pamphlets on hygiene, public health, animal disease, agricultural techniques, etc.

Much of the text is devoted to a résumé of the work done in all fields in the period under discussion. This is grouped under three main headings :—Infectious diseases spread by insects ; Bacteriology, protozoology and parasitology ; and Vaccination, serotherapy and prophylactic measures.

Bibliographical lists summarize the work of the Institute over the period.—A.S.

BOOKS RECEIVED

[Notice of recently received books in this list does not preclude review.]

CALHOUN, L. (1954). *Microscopic anatomy of the digestive system of the chicken.* pp. x + 108. Ames, Iowa : The Iowa State College Press. \$2.50.

DUBOS, R. J. (1954). *Biochemical determinants of microbial diseases.* pp. viii + 152. Cambridge, Mass. : Harvard University Press ; (London : Geoffrey Cumberlege, Oxford University Press). \$3.50. 28s.

DUNBAR, F. (1954). *Emotions and bodily changes. A survey of literature on psychosomatic interrelationships 1910-1953.* pp. xxi + 1192. New York : Columbia University Press ; (London : Geoffrey Cumberlege, Oxford University Press). 4th Edit. \$15.00. 120s.

ROY, J. H. B. (1955). *The calf. Its management, feeding and health.* pp. 79. London : Farmer & Stock-Breeder Publications, Ltd. 5s.

WELCH, H. (1954). *Principles and practice of*

antibiotic therapy. pp. xix + 699. New York : Medical Encyclopedia, Inc. \$12.00.

—. (1955). *Problems of consciousness. Transactions of the Fifth Conference, March 22, 23, and 24, 1954, Princeton, N.J.* [Sponsored by the Josiah Macy, Junior Foundation.] [Edited by : ABRAMSON, H. A.] pp. 180. New York : Josiah Macy, Jr. Foundation. \$3.50.

—. (1954). *Fat metabolism. A symposium on the clinical and biochemical aspects of fat utilization in health and disease.* [Edited by : NAJJAR, V. A.] pp. viii + 185. Baltimore : The Johns Hopkins Press ; (London : Geoffrey Cumberlege, Oxford University Press). 36s.

—. (1955). *The artificial insemination of farm animals.* [Edited by : PERRY, E. J.] pp. vi + 341. New Brunswick, N.J. : Rutgers University Press. 2nd revised edit. \$5.

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Canadian Journal of Botany	Bi-monthly	\$ 4.00
Canadian Journal of Chemistry	Monthly	\$ 5.00
Canadian Journal of Microbiology	Bi-monthly	\$ 3.00
Canadian Journal of Physics	Monthly	\$ 4.00
Canadian Journal of Technology	Bi-monthly	\$ 3.00
Canadian Journal of Zoology	Bi-monthly	\$ 3.00

Volume I of the Canadian Journal of Microbiology will consist of 9 numbers, i.e., August 1954 to December 1955.

Manuscripts for consideration should be submitted to the Editor-in-Chief, National Research Council, Ottawa 2, Canada.

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Veterinary Reviews and Annotations

The Council of Commonwealth Agricultural Bureaux has sanctioned publication by the Commonwealth Bureau of Animal Health of a new journal, *Veterinary Reviews and Annotations*. It will be produced by the photo-offset process and will appear twice a year. The first number was issued on the 1st April, 1955. The first volume will contain 96 pages.

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